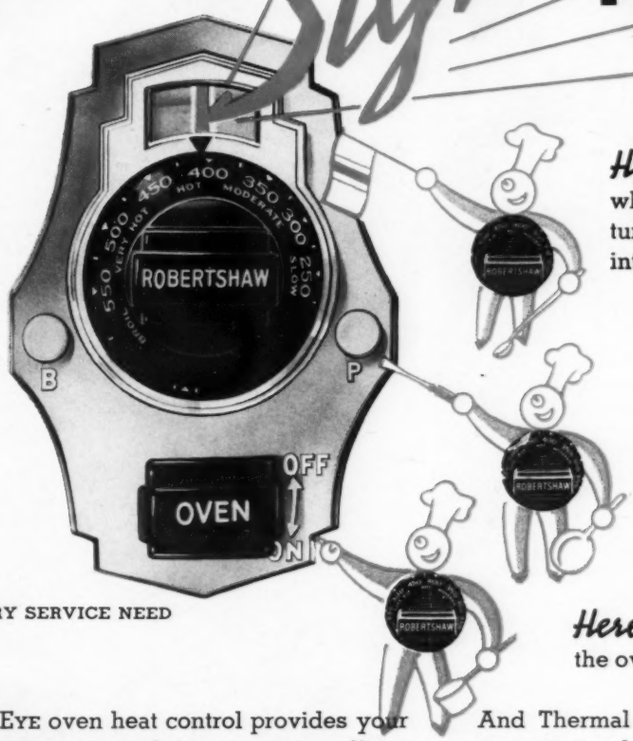
GAS

FORMERLY WESTERN GAS

ENGINEERING • UTILIZATION • LOAD-BUILDING • MANAGEMENT

FEB 14 1927

THE OVEN-HEAT-CONTROL THAT *Signals* FOR ATTENTION



Here in the Thermal Eye window, when the oven reaches the temperature set by the dial, a red signal comes into view

Here on the bezel, the oven by-pass (B) and safety pilot (P) are easily adjusted with a screw driver

OTHER MODELS FOR EVERY SERVICE NEED

Here, mounted on the bezel of the control, is the oven cock

ROBERTSHAW THERMAL EYE oven heat control provides your salesman with an entirely new approach in gas range selling.

Now he has something exciting to show, something real to say: "Here, madam, is the event of the year in gas ranges—a great improvement that you will appreciate!"

And Thermal Eye control backs him up with action. The prospect sees this new control actually *signal* when the oven reaches the temperature set on the dial.

See that *your* ranges are equipped with this attention-getting control. It will energize your selling.

OVER 2,800,000 IN USE

ROBERTSHAW THERMOSTAT COMPANY, Youngwood, Penna.

ROBERTSHAW OVEN-HEAT-CONTROL *with the* **Thermal Eye**

EMCO METERS *at work*

This industrial plant consumes a volume of gas large enough to supply a fair sized town. It's a profitable load for the gas company and one that is being measured **ACCURATELY** by **EMCO** Pressed Steel Meters.

PITTSBURGH EQUITABLE METER CO.

MERCO NORDSTROM VALVE CO.

ATLANTA · BUFFALO · MAIN OFFICES PITTSBURGH, PA. · CHICAGO · MEMPHIS

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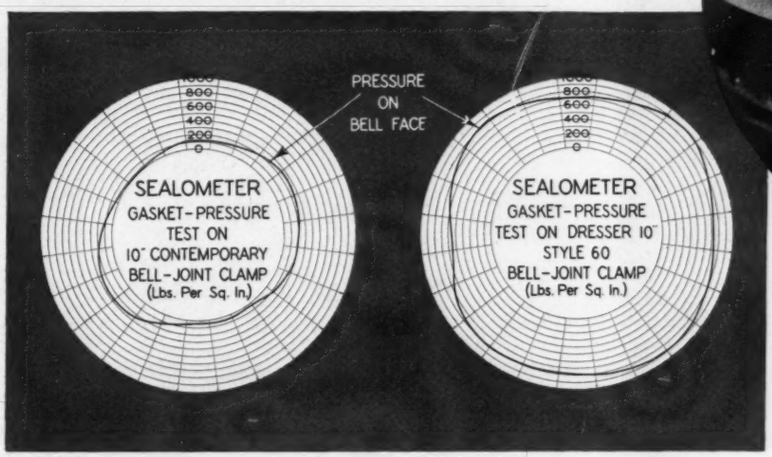
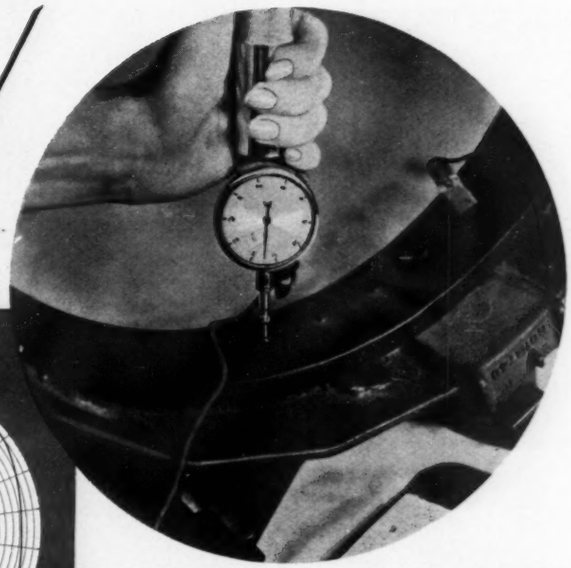
No More *GUESSING!*





The chart to the left shows gasket pressure exerted by a contemporary make of clamp selected at random, as recorded by the Dresser SEALOMETER. The pressure curve varies from 10 pounds to 275 pounds per square inch.

The chart to the right shows gasket pressure exerted by a Dresser Style 60 Clamp taken from stock. Here, the SEALOMETER-plotted curve, even at its minimum point, is high—at no point less than 550 pounds per square inch.

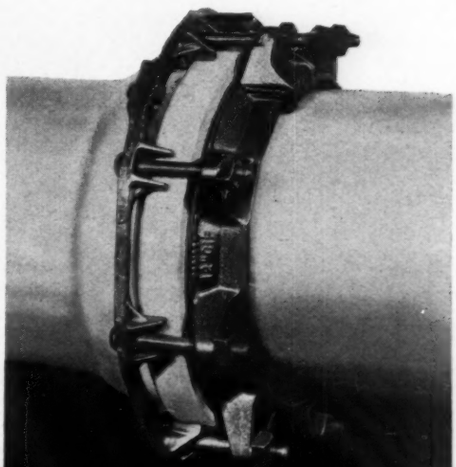
Sealing Efficiency of Dresser Bell-Joint Clamps Demonstrated with Precision

In the circle, above, is shown the indicating gage of the Dresser SEALOMETER—an instrument developed by Dresser Laboratories for measuring the pressures exerted by a clamp gasket against the surfaces that confine it. Only a clamp that MAINTAINS high minimum gasket pressure can show a satisfactory curve on the Sealometer Chart—or assure maximum and continuous sealing efficiency in service. The Dresser Style 60 is such a clamp. Its perfection was made possible by building many experimental clamps and testing them against the Dresser SEALOMETER until a perfect clamp was achieved.

Elimination of "guesswork" is just one of the features of the Style 60 Bell-Joint Clamp. Send for folder BJ-60, which tells about its practical and simple adjustability, and other exclusive features.

S. R. DRESSER MANUFACTURING CO., BRADFORD, PA.

In Canada: Dresser Mfg. Company, Ltd., 60 Front Street, W., Toronto, Ontario



DRESSER BELL JOINT CLAMP *Style 60*

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GAS

FORMERLY WESTERN GAS

LOS ANGELES Office: 810 South Spring Street. Phone Michigan 1481
CHICAGO Office: 1064 Peoples Gas Building. Phone Harrison 8536

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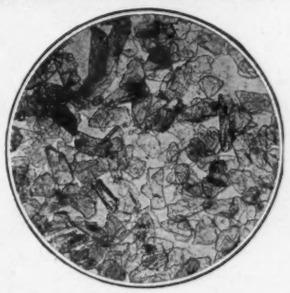


Reproduction of the micrograph above shows the interlocking of the flakes of the internal reinforcement used by Barrett. By laminating with the waterproofing agent, they give Barrett Pipe Line Enamels unusual toughness and resistance to soil stresses.

For pipe of large diameter, The Barrett Company will furnish equipment required to revolve pipe and spread enamel.

Unusual resistance to soil stresses

THE unique flake-type filler employed in Barrett Pipe Line Enamels permits the use of greater quantities of high-melting-point coal-tar pitch base. The result is pipe coating with superior resistance to the destructive effects of soil action.

This feature, together with their high flowability and resistance to water absorption and line currents, makes Barrett Enamels an outstanding value for the protection of underground and under-water pipe line installations.

THE BARRETT COMPANY

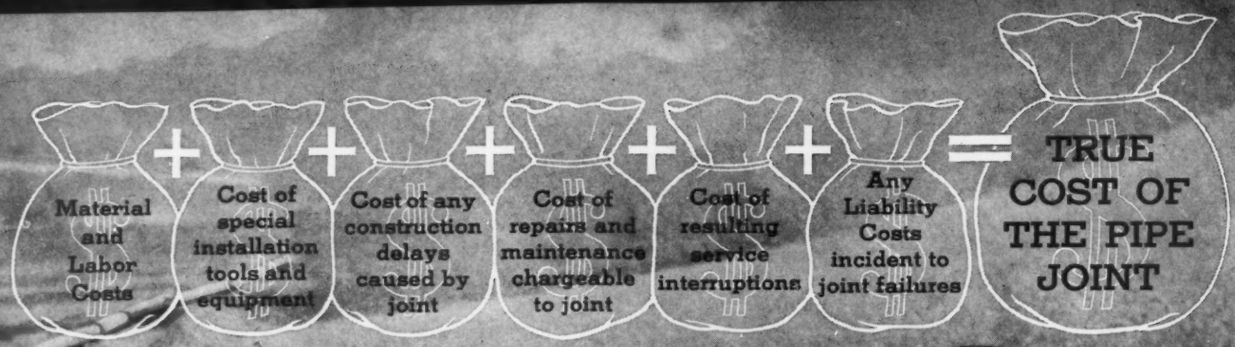
40 Rector Street **New York, N. Y.**

Barrett

PIPE LINE ENAMELS

FIELD SERVICE

The Barrett Company maintains a Pipe Line Service Department to assist engineers in all coating problems, and also has available Field Service men whose assistance is offered where Barrett's protective coatings are used. Inquiries are invited.



Scene on 10" Dresser-coupled line leading into Auburn, N.Y.

TRUE COST versus FIRST COST

Unless you take into account all of the "money-bags" shown above, it is easy to overlook certain costs in a pipe joint.

First outlay is only part of the story. On the pipe line pictured above, for instance, an intangible factor—speed of installation*—actually saved hundreds of dollars . . . all creditable to Dresser Couplings.

True economy in a pipe joint means a lower joint cost during the life of a pipe line. It means uninterrupted service such as Dresser Couplings provide—a statement proved by the performance of Dresser Couplings on more than 125,000 miles of pipe lines.

Our booklet, "Essential Qualities of a Pipe Joint," gives further information. Write for it.

* Almost a mile of pipe per day was laid with a crew of only 24 men

S. R. DRESSER MANUFACTURING CO. • BRADFORD, PA.

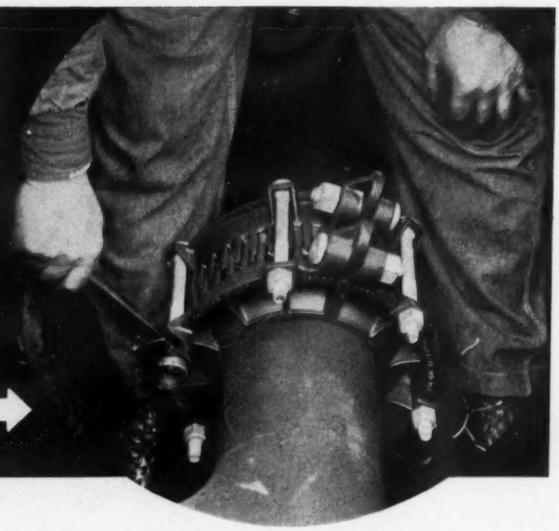
In Canada: Dresser Manufacturing Company, Ltd., 60 Front Street, West, Toronto, Ont.

DAYTON NO. 5 LONG SLEEVES

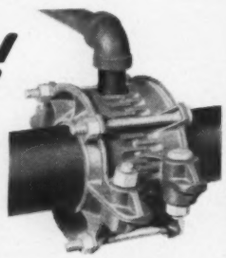
An efficient, economical means for easily and rapidly repairing broken lines. Also used extensively as an expansion joint in the original installation of welded lines. Sizes up to 24" O. D.

THE NATIONAL SUPPLY CO. OF DELAWARE
DAYTON COUPLING DIVISION · · DAYTON · OHIO

ONE MAN REPAIRS BREAKS IN CAST IRON PIPE *in 12 to 20 minutes* WITH SKINNER SPLIT COUPLING CLAMP➡



NEW!

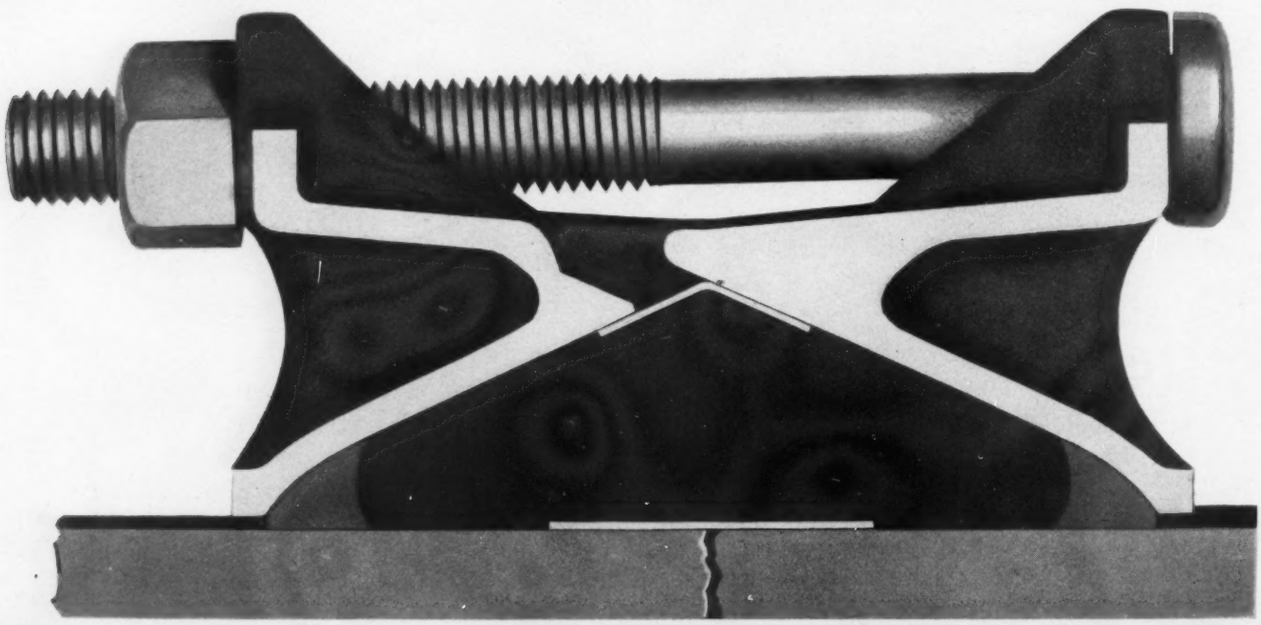


Now you can get Skinner Split Coupling Clamp adapted to the RE-PAIR OF BREAKS AT SERVICES! Write for further information on this important development, which offers definite savings.

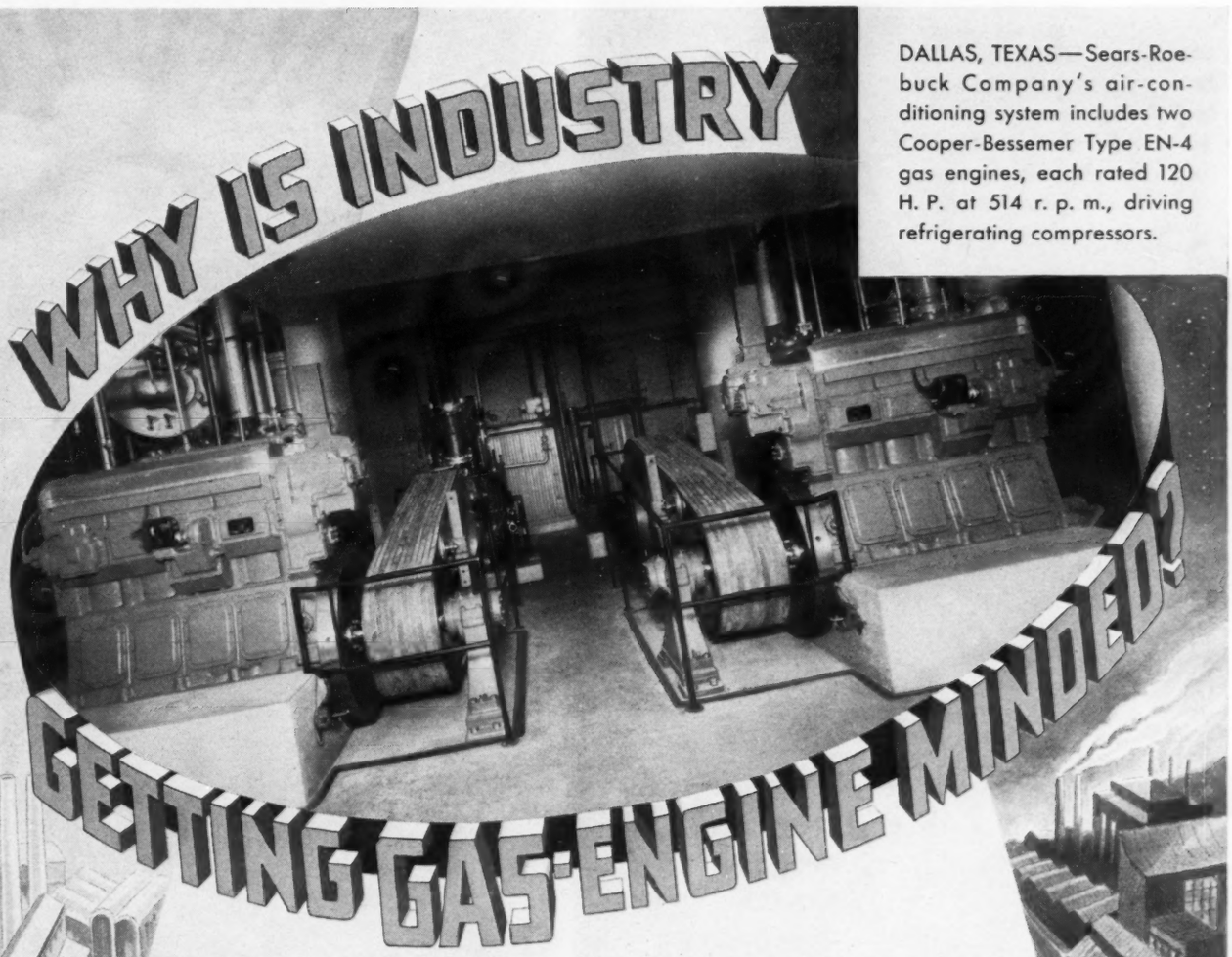
GAS MEN everywhere are using these sturdy, dependable clamps . . . not only because of the tremendous time saving (12 to 20 minutes for one man, compared to 3 or 4 hours for two or three men with the old-fashioned cast iron split sleeves) . . . but also because these clamps stop the original leak, become a permanent installation, and provide a degree of flexibility which prevents future breaks at the same point.

ILLUSTRATION ABOVE shows ease of installation, even close to an elbow! No shutdowns necessary. For pressures up to 600 lbs. with ample excess strength guaranteed.

CROSS SECTION shows how sturdy, malleable iron main rings intermesh and exert terrific pressure on triangular gasket . . . sealing the break directly and permanently. Note Monel metal sheath band at top and hard vulcanized gasket tips, which prevent contact with soil and air. Write today for prices on this economical Skinner clamp.



M. B. SKINNER CO. *Est. 1898* SOUTH BEND, IND.



DALLAS, TEXAS—Sears-Roebuck Company's air-conditioning system includes two Cooper-Bessemer Type EN-4 gas engines, each rated 120 H. P. at 514 r. p. m., driving refrigerating compressors.

Here's the LOW-DOWN:

INDUSTRIAL and commercial users are becoming "sold" on these advantages of Natural Gas for power generation: (1) Cleanliness. (2) Dependability and adequacy of the fuel supply. (3) Instant availability. (4) No storage nor handling; no waste. (5) No investment in fuel until after it has been used.

Industry is just as quick to see the advantages of Cooper-Bessemer heavy-duty gas engines; namely: convenience, reliability, economy —— and LONG LIFE. ..... Ask us for details.

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Serves the Public Utilities

PERS

KOPPERS helps the public utilities in many of their efforts to lower costs, increase output, and improve the quality of their products and services.

Koppers builds coke ovens and other plants for manufactured gas and is responsible for numerous improvements in gas manufacture. Koppers was the originator of the processes for liquid purification of gas and at the present time has a new process which segregates the hydrogen sulphide in gas so that it can be made into sulphuric acid.

Koppers produces coal used in the making of gas and electric power. It has carried on laboratory and plant researches on coals suitable for gas-making, and controls in this country the Rheolaveur process used in washing and cleaning coal. Koppers builds complete coal-handling and distributing stations, including tipples, boiler and power plants, shops, etc. Koppers has developed new processes for the utilization of heavy fuel oils in the manufacture of carburetted water gas.

Koppers operates large merchant coke and gas plants, sells gas to local gas companies, and buys coke, tar and other products from gas companies which operate their own gas plants. Koppers builds both waterless and water-seal gas holders, manufacturing the necessary holder seal oil and holder seal tar. Koppers pitch and solvent naphtha are used for pipe coatings on gas lines, and Koppers valves are used in many gas, air and water lines.

Fast's self-aligning Couplings, which are widely used on power shaft connections, are manufactured only by Koppers. American Hammered Piston Rings for gasoline, steam and Diesel engines and for pumps, etc. are made in a Koppers plant. Koppers makes bronze and iron castings. Poles, piling, cross ties, cross arms, lumber, and much other timber used by utilities are protected from decay by Koppers preservative treatments. Many plant roads and parking areas are paved with Koppers Tarmac; buildings are covered with Koppers pitch and felt roofs; masonry and concrete work is protected by Koppers waterproofing and dampproofing materials; metal and concrete are protected by Koppers bituminous paints. Koppers also makes fire hydrants for industrial plants.

Koppers manufactures raw materials for synthetic resins used in insulation, varnishes, laminated panels and instrument parts; raw materials for solvents and diluents for lacquers and other finishes on electrical machinery and instruments; pitch for batteries and conduit; weed-killers for right-of-way, insecticides, disinfectants and deodorants.

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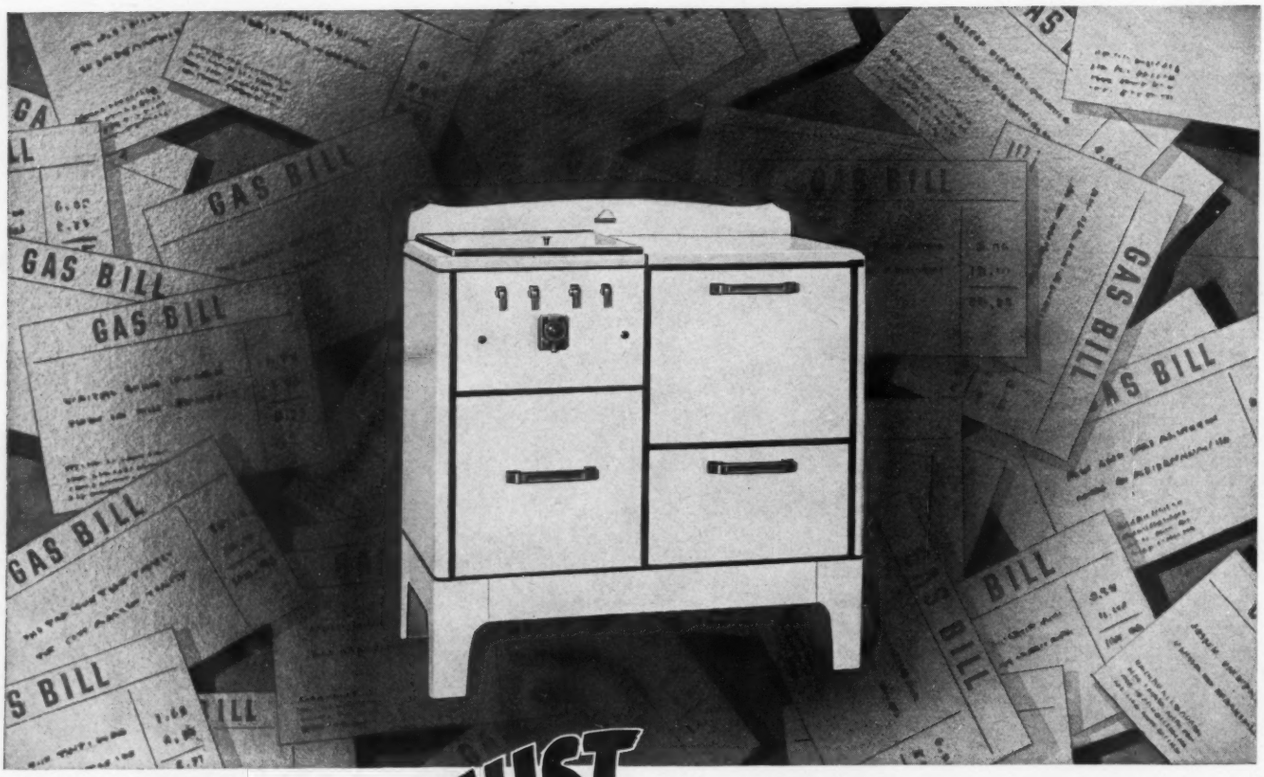
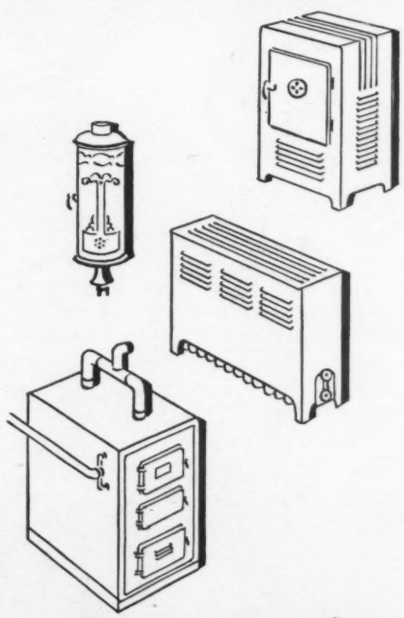


APPLIANCES MUST OUTLIVE INSTALLMENTS

● Utilities merchandising gas appliances owe it to themselves to make certain that the appliances are so made that they will outlive the period covered by installment payments of users.

If the manufacturer uses Toncan Iron Enameling Stock for the base metal of porcelain enameled products, you may rest assured that the porcelain enameled parts are of highest quality that lasts for years.



Republic Steel Corporation
GENERAL OFFICES . . . CLEVELAND, OHIO

REG.U.S.PAT.OFF.
TONCAN IRON ENAMELING STOCK

The "WORKINGEST" TRENCHERS You Ever Saw or Used

MOST TRENCH—IN MOST PLACES—AT LEAST COST

The CLEVELAND BABY DIGGER—Model 95

for Town and Suburban Work

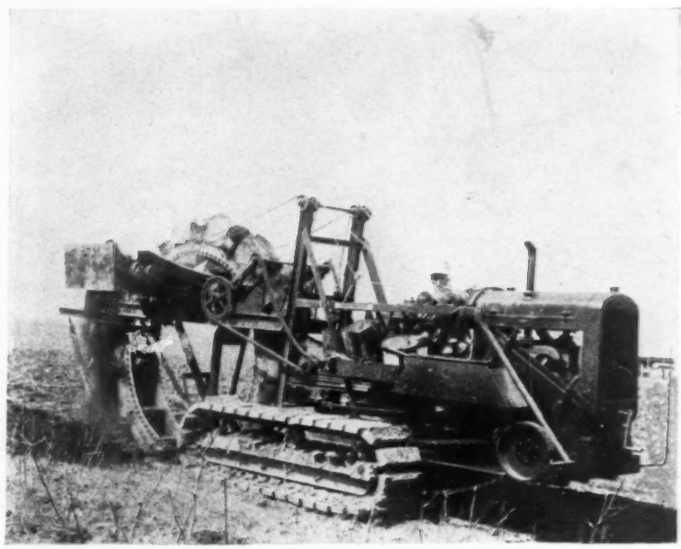
Compact, flexible, tough and with minimum weight —modern and quality built—that's the Baby Digger Model 95. Its patented design enables it to cope with surface and subsurface obstructions, requiring small working space . . . extremely transportable (see cut bottom left). The Baby Digger is standard equipment with leading Gas Companies everywhere. Now further improved. With the Baby Digger you have the best chance to machine-dig your next job.

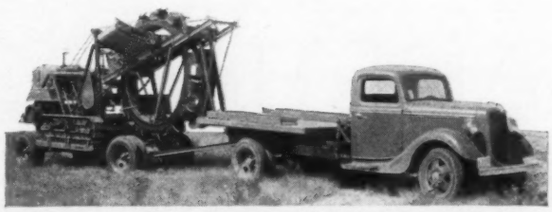
The CLEVELAND "MODEL 110"

for Cross Country Ditching

Fast, dependable and backed by "Cleveland" Quality Construction the "Model 110" has proved ability to cut ditch for field and transmission lines, at lowest possible cost.

Low-cost trucks speed transportation (see cut bottom left) makes it available for shot scattered work, reconditioning jobs, etc., well-balanced on crawler tracks, of ample speed and size to enable it to dig successfully over roughest terrains or swampy ground—patented features and fictionless construction permit handling of hard sticky, stony soils, with maximum production.



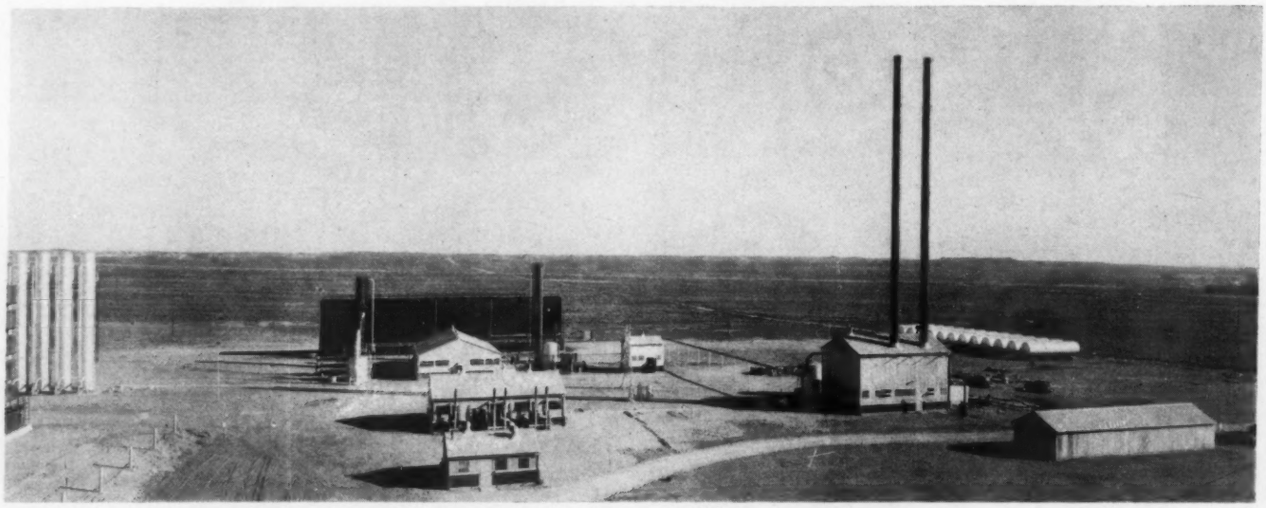


Address inquiries to

THE CLEVELAND TRENCHER COMPANY

20100 St. Clair Ave. Cleveland, Ohio

The CLEVELAND Model 110 BABY DIGGER Model 95



Absorption and dehydration unit designed to handle 135 MM cubic feet per 24 hours at 450 pounds gauge, with designed ultimate at 200 MM, recently put into operation for the Panhandle Eastern Pipe Line Company at Liberal, Kansas.

Designed and constructed in affiliation with The Stearns-Roger Manufacturing Company by....

PARKHILL-WADE, Inc.

CONSULTING and CONSTRUCTION ENGINEERS

973 North Main Street Los Angeles, California

the World's Largest

GAS FIRED UNIT HEATER INSTALLATION AUTOMATICALLY CONTROLLED BY . . . . . .

Minneapolis Honeywell

THE NAVY PIER, CHICAGO
Automatically controlled by
Minneapolis-Honeywell

AUTOMATIC CONTROLS MH

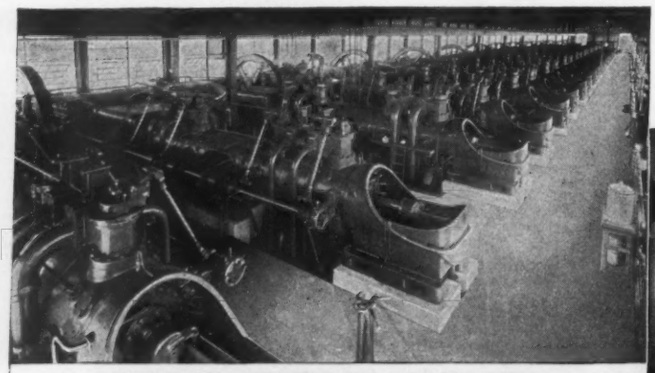
THE Navy Pier in Chicago is the largest gas fired space heating job in the world, nearly a half mile long, extending into Lake Michigan. It is heated by 105 unit heaters, automatically controlled by 70 Minneapolis-Honeywell Thermostats and relays. The total gas input to the unit heaters is 28,620 B. T. U. per minute, heating 261,616 sq. feet of floor space. Whatever the requirements of a building may be, there is a Minneapolis-Honeywell automatic control system engineered to exactly fit the specifications. No job is too large, and none too small . . . Minneapolis-Honeywell Regulator Company, 401 East Twenty-eighth Street, Minneapolis, Minnesota . . . Branch and distributing offices located in all principal cities.

MINNEAPOLIS-HONEYWELL

Control Systems

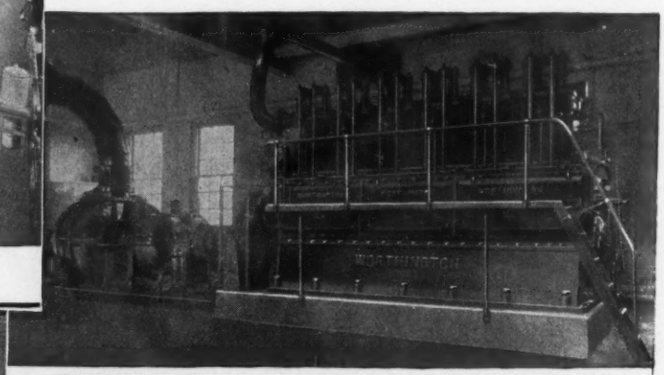
BROWN INDUSTRIAL INSTRUMENTS FOR INDICATING, RECORDING AND CONTROLLING

THE MOST COMPREHENSIVE LINE of GAS ENGINES



GAS PIPE LINE

(Above)
Fifteen Worthington 1300-hp. 24" x 36" Horizontal Twin-Tandem Gas Engine Gas Compressors, in a large natural gas pipe line station



GAS DISTRIBUTION

360-hp. Worthington Convertible Gas-Diesel Engine, driving positive-pressure blower on city gas distribution

OIL PIPE LINE

(Below)
Worthington 240-hp. Vertical Gas Engine, driving a Worthington 5⅜" x 24" Duplex Hot Oil Pump in refinery

Two Worthington 240-hp. Vertical Gas Engines, each driving a Worthington 6" x 18" horizontal duplex plunger type forged-fluid-end power pump for 750 lb. pressure, transporting oil from field to refinery

REFINERY

30 to 1800 horsepower
Horizontal and Vertical

MORE than half a million horsepower in successful operation . . . in pipe line and refinery pumping, service distribution, and the generation of power.

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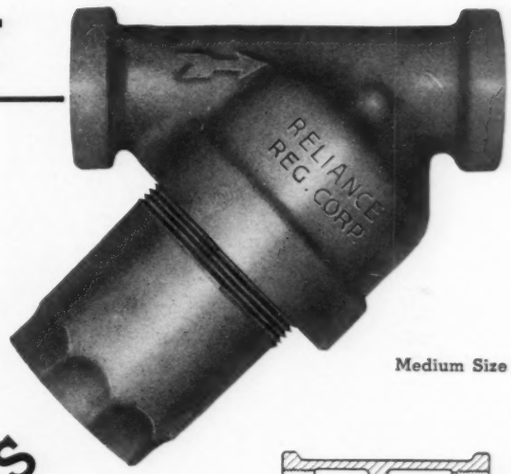
GE7-4

OR THIS WAY

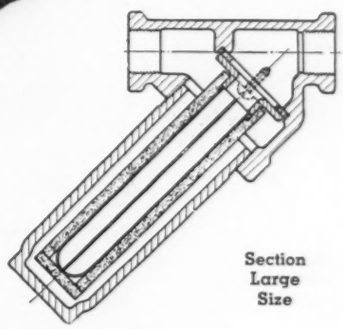
THIS WAY

Protect Service Lines Meters, Regulators, Pilot Lights and other Appliances



Medium Size

CLEAN GAS



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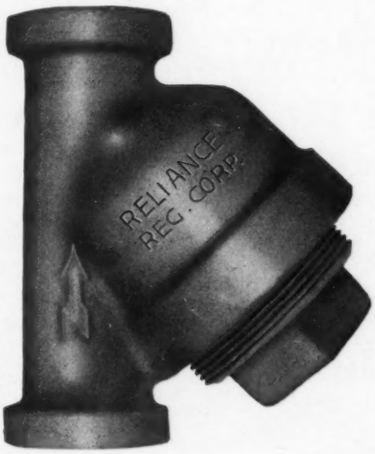

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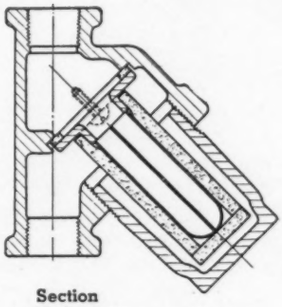


Section Medium Size

with RELIANCE TYPE "A" FILTERS

Put a Reliance Type "A" Filter in a horizontal or vertical gas line ahead of the meter, regulator and other appliances and you stop all troubles and expenses that can occur in dust areas. This simple, low cost fitting gives permanent, individual, local protection to the entire system in which it is installed. Made in one standard body to which three sizes of filter elements can be applied, meeting all requirements as to capacity. Available with ¾" female threads, or gasketed unions at one or both ends. Filter elements have 2" standard pipe threads and can be replaced or changed without removing the body from the line.

Eliminate dangerous hazards and costly service by making a Reliance Type "A" Dust Filter standard equipment.

Send for Bulletin No. 35

RELIANCE REGULATOR CORPORATION
1000 Meridian Avenue Alhambra, California

REGULATORS YOU CAN RELY ON — RELIANCE — SINCE 1910

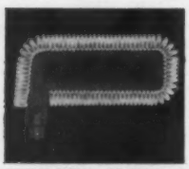
RELIANCE REGULATORS

Universal FOR 1937...

has what it takes to . . .

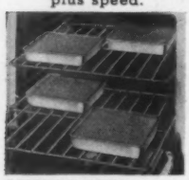
- INCREASE SALES VOLUME
- ASSURE PROFIT
- CREATE A NEW APPRECIATION OF GAS SERVICE
- PROTECT THE GAS COOKING LOAD

1937 Harvard Universal



EQUALATOR PRECISION OVEN BURNER—permits low oven temperatures plus speed.

SIMMER-SAVE BURNER—gives a controlled boiling heat at click of valve.



PRECISION OVEN—gives uniform heat distribution—no hot or cold spots.

IN-A-DRAWER BROILER WITH SAVORY GRID—eliminates smoke, makes broiling easy.

● There are four definite problems to which the 1937 gas range must furnish the correct answers if it is to measure up to the overall needs of the gas utility merchandiser. They are briefly, (1) Sales Volume, (2) Profit, (3) Consumer Satisfaction, and (4) Protection of Gas Cooking Load.

Performance is the basic essential which the gas range of 1937 must incorporate if it is to satisfactorily meet these requirements.

The modern Universal Gas Range is a precision cooking machine. It introduces more convenient and higher standards of cookery. It simplifies each cooking operation and effects added savings in time, food, fuel and effort. It gives superior controllability for low temperature oven cooking, plus a measured boiling heat for waterless and semi-waterless cookery.

On every count, the Universal has what it takes to accomplish outstanding sales results as well as to create in the minds of consumers a new and sincere appreciation of what modern gas service, when utilized through a modern appliance, offers the Homemaker from the standpoint of making food preparation simple, certain and time releasing.

Universal Gas Ranges

MANUFACTURED BY CRIBBEN & SEXTON COMPANY, 700 N. SACRAMENTO BLVD., CHICAGO, ILL.

GAS
February, 1937

Guest Editorial

A. G. A. E. M. Asks Industry To Anticipate Appliance Sales Needs During 1937

By WILLIAM T. RASCH

President, Association of Gas Appliances & Equipment Manufacturers

THE gas industry goes into 1937 with the feeling that business will be better than it has been for the last five years. This statement certainly reflects the feeling of the gas appliance manufacturers.

The manufacturers are, of course, mindful of the possibilities of interruptions in business advances during the year due to various troubles which may happen within industry itself, particularly insofar as labor is concerned. It is not felt that these periods will be of long duration, and will act only as temporary setbacks. While it is true that the gas appliance industry is very closely allied to industries which are now experiencing trouble, the fact remains that once these situations are properly coped with in these allied industries the tension will be relieved for the appliance manufacturers. I feel that every business man today can build with more confidence and along sounder lines than it has been possible for him to do in the last few years.

It is also the feeling that the building industry will be greatly improved during this year and, therefore, gas appliances should share in this improvement. Modernization of old homes will continue on a larger scale which should also help to sell gas appliances. The market, therefore, is ready to be sold; but the buyer, in this case the gas utilities and distributors in general, must realize that as is always the case when the demand starts to exceed the supply, it becomes a sellers' market. Therefore, everything possible should be done by the gas utilities and the distributors to co-operate with the manufacturer in order that the proper service may be rendered.

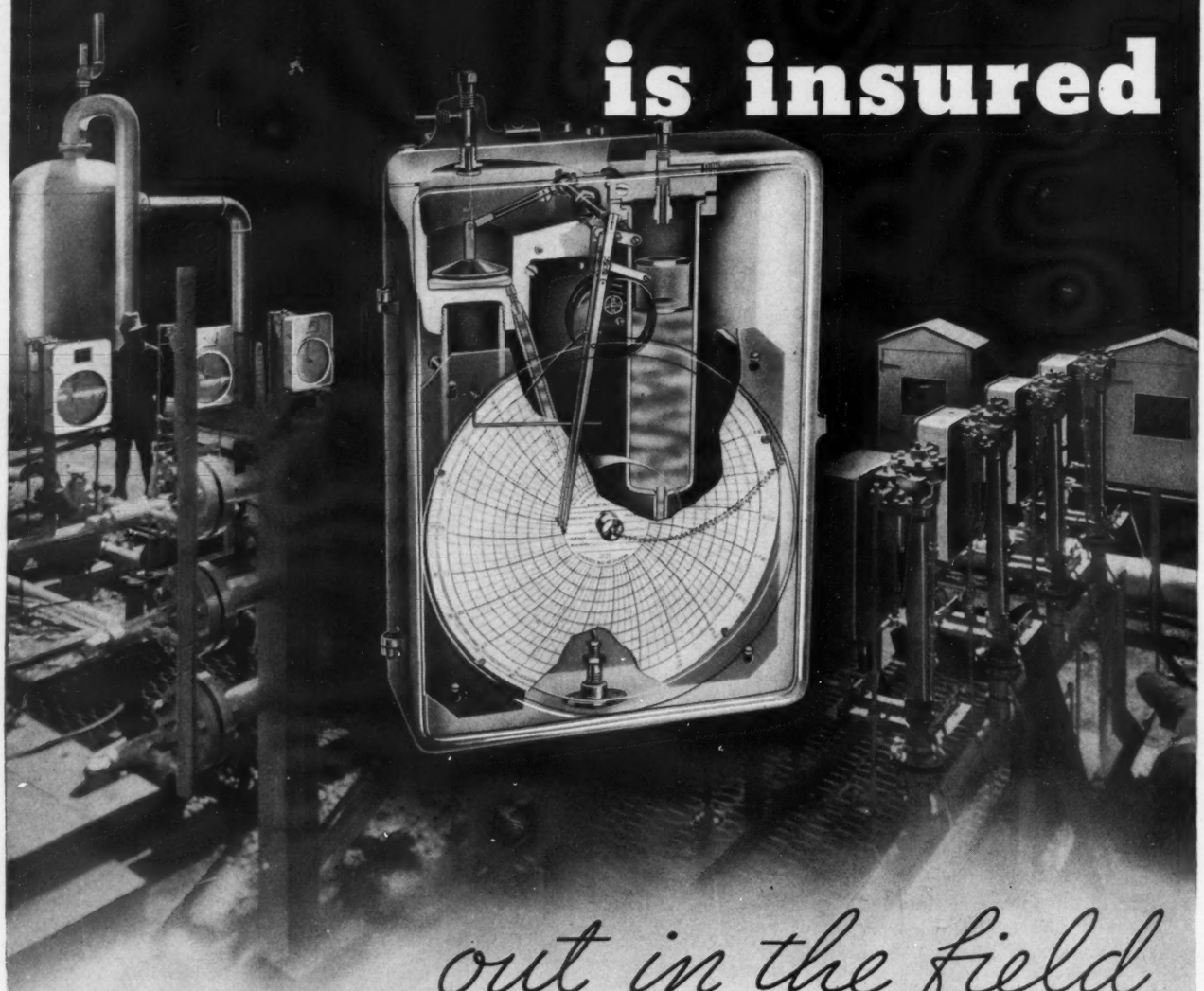
Gas appliances can no longer be purchased in the small quantities which has been the case for the past few years, if the utilities and distributors expect to obtain prompt deliveries. Sales needs must be anticipated to the extent, that enough appliances will be ordered to make it possible for the manufacturer to anticipate his requirements. It should be realized that raw materials can not be delivered today short of from three to four months of the receipt of an order and the appliance men very frankly expect the conditions of delivery to become worse, as the year goes on, and not to improve. The manufacturers generally are very envious and proud of the service they have been able to render in the past, and are anxious that they be given full co-operation in order to maintain these standards.

It should be further realized that prices are being, and will be, increased. Raw materials, labor, overhead and taxes have already increased and it is expected further increases will be made during the year. Therefore, it is only natural and proper that gas appliance prices will increase.

The industry should be very proud of the advanced types of gas appliances offered on the market during the last year. Never before in the history of the business have the manufacturers produced better looking or better operating appliances than they are at present producing. The recent Atlantic City Convention exhibit was, without question, the finest display of gas appliances and equipment ever seen in this country.

It very definitely indicated the progress that has been made by the manufacturers in the last two years in not only the development of new and better operating appliances, but in their design and eye-appeal. This should be of tremendous value to the entire industry and prove of considerable importance in the selling of gas appliances in 1937.

Where accuracy is insured



out in the field

All of the many significant Westcott refinements in construction have a single purpose . . . a PRACTICAL meter that will HOLD its fine in-built sensitiveness and accuracy—no matter how rigorous the conditions of service, whether for Indicating, Recording or Integrating instruments. ● Accuracy must be BUILT INTO a meter. In the Westcott orifice meter, it is embodied in a score of outstanding features: The precision machining of the differential gage body chambers . . . the low angle of travel of the float . . . the small angular travel of the static pressure tube . . . only one movable part between the mercury surface and the chart record . . . ● Printed or personal engineering information is available on request. Specifications on the popular new Round Case Indicating Flowmeter also may interest you.

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AMERICAN METER CO. MEASUREMENT ENGINEERS

AMERICAN METER COMPANY
INCORPORATED
Measurement and control of Gas, Oil, Steam, Air and Liquids
PACIFIC METER WORKS • LOS ANGELES • SAN FRANCISCO

February, 1937

GAS

Vol. XIII, No. 2

THIRTEENTH YEAR OF PUBLICATION

LOS ANGELES—810 South Spring Street . . 1064 Peoples Gas Building—CHICAGO

SELLING NATIONAL INDUSTRY

on the Houston Area . . . A Gas Utility Conducts A Far Reaching Advertising and Survey Program

By ROBERT L. DABNEY

Sales Manager, Houston Pipe Line Co.

● For months the Houston Pipe Line Co. under the direction of its president, George A. Hill, Jr., has been conducting an intensive campaign to interest American industrialists in locating their factories and plants in Texas, where a plentiful and inexpensive supply of natural gas is available.

ROBERT L. DABNEY

GEO. A. HILL, JR.

In conducting the campaign it was evident that the best means of selling natural gas was to sell Texas—its resources, its climate, its people, its pioneering spirit—not through ballyhoo and vague generalities but through a wide dissemination of facts and figures of paramount interest to industrialists. The campaign has proved of three-fold value—to the Houston Pipe Line Co., to the industrialists, and to the people of Texas. Too much commendation cannot be given the Houston Pipe Line Co. and Mr. Hill for the vigor and foresight displayed in the creation of this campaign. The plan and execution of the campaign are herewith related in the article by Mr. Dabney.—EDITOR.

AN advertising program designed to interest industries in the use of natural gas as the most logical and inexpensive of fuels is a many-sided problem which must necessarily present itself in a different aspect to each individual company which advertises. I am not familiar, and I cannot be familiar, with every aspect of the problem; but as the Houston Pipe Line Co. has more or less pioneered in the advertising for industrial loads in this area, our experience may prove to be a source of ideas for others in any advertising program having the same objective, and the campaign of the Houston Pipe Line Co. may, therefore, be of more than local interest.

For a good many years now, Texans have been telling themselves and each other that their state possesses great natural advantages which some day would support a diversified industrial development. We have been telling each other this, and the result is, industrial development has been going disproportionately to other states which did not keep their industrial resources a family secret.

A solid industrial development is, on the other hand, necessary to the prosperity of any wholesaler of natural gas in this territory. Our sales to distributors for domestic use are limited somewhat by the mildness of our climate. For the general public—and for the industrialist—this is a happy circumstance; it makes South Texas a very pleasant and commercially practicable place in which to live and to economically conduct industrial operations. But for the gas salesmen, confronted with the necessity of disposing of many billions of cubic feet of natural gas, the climate is a poser. A lot has been said about the weather, as Mark Twain observed, but nobody's ever been able to do much about it.

The industrial consumer is the most effective answer to the gas man's volume problem in South Texas. When George A. Hill, Jr., became president of our company in 1932 he faced this fact squarely. He realized, moreover, that industry needed what South Texas offers as badly, or, indeed, worse, than the South Texas gas man needed industry. He had a detailed picture of the industrial advantages of the teritory we serve. A Texan born and bred, he realized the duty (and I say "duty" in all sincerity) of a Texas institution to take the lead in the development of the teritory it serves.

With this background, it did not take him long to hit upon a plan to reveal the riches of South Texas to industrial America. The time, however, was not ripe for a successful expansion of the plan—the country was in the throes of the depression and only the framework of the plan could be organized. A first step called for the establishment of a wholesale sales department. This took place in 1934, and the company's industrial load shortly began to climb. Efforts were concentrated on new local industrial business, and since the coast country was then (and still is, for that matter) undergoing a widespread development of its natural resources, a considerable volume of new business was developed. At the same time, the new sales department began to perfect the plan.

First, we took stock of the situation.

What, we asked ourselves, can South Texas, the country along our pipe line, offer outside industry? That question didn't take long to answer. South Texas is a region tremendously rich in natural resources. We have oil (and all its products), salt, lime, metallic ores, cotton, wool, mohair, fuller's earth, sulphur, cattle, clays of various sorts, timber and many other of the raw materials of industry. We also have unsurpassed rail and water transportation facilities, a mild climate, a progressive people, and a ready access to foreign and domestic markets. The country was ready and anxious for a widespread industrial development.

Next, we asked ourselves what we could do to tell industry about all this. We realized that generalities and "booster talk" would receive scant attention from men who base their decisions on well authenticated facts. Accordingly, we instituted an individualized survey service; we prepared ourselves to furnish any given industrial management the factual information it might need in considering South Texas as a location for a plant. Each survey was to be, and has been, specially worked up on request. They are full-fledged engineering reports, detailed and comprehensive. No matter how many topics are related to the industry in a given survey, those topics are covered completely, subject heads often reaching 25 or 30 and the survey itself 150 to 200 pages, including maps, charts, and graphs. Where the work was beyond the scope of our own professional men—our own chemists, geologists, geophysicists, engineers, lawyers, and land and tax people—outside aid was called on. The best testimony to the completeness of the surveys is to be had in letters from a very diversified group of industrialists whose general interest has been localized and particularized by specific, industrial surveys furnished to them upon request, but whose comments are, at the moment, confidential and not available for public disclosure.

We believed that the time was not ripe for an expansion of our program until 1936. That year, on the other hand, was obviously the year to start. A year ago it was plainly apparent that the country had its feet firmly planted on the road to recovery; there were decisive upturns in every important branch of American industry. What was more, there was a considerable obsolescence in industrial plants; during the depression many managements had hesitated to spend money for new equipment; they were, consequently, in a receptive mood for our message—many of them, indeed, were already considering new locations as well as new plants. Finally, 1936 was Texas' Centennial year; the State and its resources had already received much advantageous publicity; it was in the limelight of public attention and anything about Texas, the largest but one of the least known of all the States, would be read throughout the nation with interest.

So, with the time ripe and with the survey service established and its practicability from the consumer's point-of-view thoroughly tested, we began to advertise.

The program is divided into three parts: First, general advertising designed to reach the whole broad market of industry; second, trade paper advertising to reach specific industries; third, direct-by-mail advertising to reach individuals. All three types of advertising are based fundamentally on the survey service.

For the general advertising, we use Fortune Magazine exclusively. The region we wished to advertise furnished us with our copy ideas. On account of the Centennial, our Fortune advertising is based on Texas; we have made it thoroughly Texas in its outlook, and even in its language. And we have had an inexhaustible supply of material to draw from. Probably no other State in the Union could offer so much. This program has been semi-institutional in nature with gas featured more by implication rather than by any heavy selling effort.

The first advertisement, for example, quoted in its headlines the old Texas brag, "If all the steers in Texas were one big steer . . ." The copy logically develops the thought that Texas, despite the fact it ranks first in the Union in the number of livestock on its farms and ranches, is now ripe for an industrial expansion which has already begun. Another advertisement quotes from a letter addressed to Stephen F. Austin, the father of Texas, while Texas was still a part of the Republic of Mexico. "The emigrating, or Texas fever prevails," wrote Austin's correspondents; from this quotation it was easy and truthful to develop the theme that today the trend of industry is toward the Southwest. A third advertisement quotes from Austin himself, from a description of Texas he wrote to accompany a map he made.

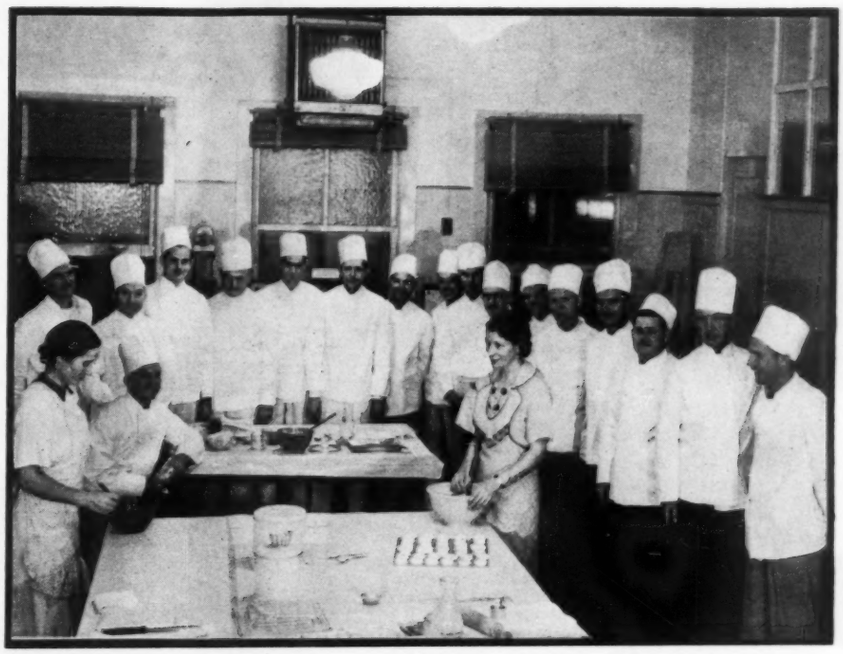
(Continued on Page 28)

1936
1936
"A very extensive and valuable territory"
In 1828, Stephen F. Austin, the father of Texas, wrote a description of the country to accompany a map he had drawn. Map and description were prepared and circulated to serve the same purpose as this advertisement—to call attention to the resources of Texas and the opportunities they offer. "Texas," said Austin, "embraces a very extensive and valuable territory." The climate, he pointed out, is mild, commercial facilities abundant, water transportation available all along the coast. Members of his colony, he said, had found that "the produce of the soil far exceeds their most sanguine expectations."
Austin's message was addressed to cattlemen and farmers, and today the agricultural conquest of Texas is practically complete: Texas takes first place among all the States in the value of its crops and livestock.
We speak to the industrialist, for the development of Texas' industrial resources is only well under way, and as in 1828 there was ample room in Texas for the newcomer bent on farming, so today there is an abundant opportunity for the industrial pioneer.
For the industrialist, Texas is still "a very extensive and valuable territory." In South Texas alone are industrial resources, the accurate aggregate value of which it would be difficult even to estimate: oil in tremendous quantities; sulphur; salt; lime; fuller's earth; metallic ores; timber; cotton; wool; mohair; and many others; and for fuel there are inexhaustible quantities of natural gas, the world's most efficient fuel for industrial power.
Our 650-mile system of natural gas pipe lines* has been developed to serve the nascent industry of this rich section. Our organization is intimately acquainted with the country's resources and the possibilities of its development. This knowledge it offers you through a confidential survey service based on the assumption that the information needed by different companies—even within an industry—necessarily differs. Each survey is, therefore, specially prepared on request. There is, of course, neither cost nor obligation.
Send for a survey of South Texas and the Coast Country prepared for your company. Other companies have found these surveys very helpful, and many of them have blazed the trail that, soon or late, you, too, will follow. When you do, you will discover that the industrial possibilities of South Texas far exceed your "most sanguine expectations."
* Shown by a dotted line on the map above. This system serves the most rapidly industrializing section of Texas with industry's most efficient fuel —Natural Gas.
HOUSTON PIPE LINE CO.
Subsidiary of Houston Oil Company of Texas
Wholesalers of Natural GAS
-6-

The story of the Houston Pipe Line Company's service territory was carried to national industry through "Fortune" magazine. Above is a typical advertisement.

By WARREN W. KING

Chairman, Educational Committee
Employees' Association
Los Angeles Gas and Electric Corporation



Home Service director Victoria Warner and her assistant, Margaret Martin, instruct a class of men in cooking fundamentals.

L.A.G. & E. School Offers Diversified Program

THE Evening School of the Employees' Association of the Los Angeles Gas and Electric Corp., through its semi- and highly specialized class room instruction, has developed a better understanding of the corporation's policies and procedures, improved the company's service and business; increased the happiness of the workers, created morale and group thinking, and offered to company employees mental stimulation and relaxation. The school brings to the company the gift of employee acquaintanceship with spontaneous goodfellowship, co-operation and loyalty; it increases the employees' fund of information, particularly as a background to his work; gives opportunity for the adult mind to unfold along cultural lines without breaking from company association.

W. W. KING

Many big corporations feel today that it is a good thing to have employees, no matter what their work, who give evidence of culture; that mass education is a valuable asset. The result is that our employee body fosters classes which come very near to giving a university polish.

Since the inception of the school, one type of course has created a demand for another until the number of classes has, in a few short years, increased from 8 to 45; the number of instructors from 8 to 40, and the enrollment for the school year ending June, 1936, totaled 1,742, an amazing total when we consider that the eligible employee group numbers but 2,000.

From this growth at least one new class has been pioneered in the Los Angeles Gas and Electric Evening School. This class is known as Chairmanship, with Mr. D. L. Scott, personnel manager, as instructor. This course of study gives the fundamentals and practice in the delicate art of functioning as a committee chairman and toastmaster. We have been unable to find any record that this subject has ever been treated in this manner either in text or in the class room.

With 526 enrollments (and more to come) out of 1,100, Gas Utilization classes are breaking all records for popularity among the subjects being taught in this tenth year of the school's existence.

Classes Organized

To meet the demand for gas subjects alone, 12 different classes have been organized. Employees from 15 different departments of the company make up the registrations. For the first time in the history of this school over 80 per cent of the class members are drawn from the Customers' department—bookkeepers, meter readers, collectors, contract and investigation clerks, etc.

In past years these "gas" subjects were presented in a more or less technical manner to the gas distribution personnel. Apparently the office man wanted it all along and was willing to spend his time and money to get it.

R. V. Davis of the Sales and Advertising department is "dean" of the instructors, having developed the subject matter for the customers' man and a method of presentation which combines lectures, demonstrations, slides and motion pictures which really get at the "story behind the service." Davis' text, "Natural Gas and Domestic Utilization," is used by all the classes.

Recently in the Evening School's first Men's School of Modern Gas Cookery it was demonstrated that gas is clean, quick, and dependable even in the hands of rank amateurs. In these classes each two-man team has its own modern gas range and at each meeting an assignment to prepare one or more items on the evening's menu is given. There is a preliminary lecture on cooking fundamentals, preparation of a dinner, and afterwards a lively discussion on the meal itself and competitive fuels.

In each of the "Gas" classes the highest ranking student will receive a year's membership in the Pacific Coast Gas Association. Several subscriptions to *G A S* will go to honor students.

As a follow up course to the Gas Utilization classes, those successfully completing the course will be offered the American Gas Association sales course, briefed and adapted to their particular needs.

Outsiders are often surprised to learn that this vast educational program is

administered entirely by bona fide employees of the company entirely on their own time, apart from their regular duties in some 30 departments. Our functional chart lists a chairman, a vice-chairman, a secretary, curriculum committee, woman's committee, publicity committee, special assignment committee, 14 departmental chairmen and 18 subcommittee members. Their purpose is to sell education in general and our own classes in particular. Each member is a real organizer, with educational ideals that will compare with anything the orthodox academic halls can produce.

At the end of the day's work it is only the best instructor who can keep a group of employees comfortable and interested. Attendance being voluntary, employees feel no urge to take part unless they are getting instruction of measurable value. An unsatisfactory teacher will destroy a class in a few nights. Certainly only the best available teacher in any subject should be employed for evening school work with adults. A large number of our teachers are drawn from our own ranks. They are selected for their ability in the subject they are to teach. In addition, a considerable number of members of our official family have lectured classes on subjects on which they were qualified to speak with authority.

Executive Co-operation

The employees are encouraged by department heads to attend the Evening School. The final decision, however, is always left to the employee. No hope of special reward is held out for success in this work. It is felt, though, that anyone enrolled in any of the courses will soon discover that what is offered will contribute greatly to his efficiency on the job.

The best interests of any employee educational program can only be served effectively through the so necessary attention and co-operation of company executives and established educational centers. That we have obtained this patronage may best be illustrated by the following. The first is a quotation from the preface to our Evening School Educational Handbook, *The Sharpening Mind.*

"It has been definitely established that the human mind increases in keenness and ability with the passage of years, provided it has not been stunted by lack of exercise. Therefore, when anyone remarks that he 'can not learn as easily as he could in his youth,' it means either that he is the victim of impaired health or that he has permitted his mind to become rusty with disuse.

"Thus there are two benefits from study—increased knowledge and a keener mind. Both of these results have a business value, and both also add to the satisfaction of living.

"It is with the greatest pleasure that I review the widespread participation and deep interest of my associates in L. A. Service in the educational program of our Employees' Association; and it is with the greatest enthusiasm that I offer my continued co-operation.

"Very sincerely,
"(Signed) Addison B. Day
"President and Genl. Mgr."

Concerning our School Dr. William B. Munro writes from the California Institute of Technology: "I doubt if one could find the like anywhere in the country. If any of us who are regularly engaged in educational work can be of help to you at any time with suggestions, or if our counsel can be of value in any connection, do not hesitate to let us know. I feel sure that any of us would be only too delighted to encourage this worthy enterprise with all the moral support that we can give."

Calendar

February

Eastern Natural Gas Regional Sales Conference—William Penn Hotel, Pittsburgh, Pa., Feb. 4-6.

Southern Gas Association—Southwest Regional Gas Sales Conference, Peabody Hotel, Memphis, Tenn., February 10-12.

New England Gas Association—Hotel Statler, Boston, Mass., February 11-12.

Midwest Regional Sales Conference—Palmer House, Chicago, Ill., February 18-20.

March

American Society for Testing Materials—1937 Regional Meeting and Committee Week, Palmer House, Chicago, March 1-5.

American Gas Association, Industrial Gas Section — General Commercial and Hotel and Restaurant Sales Conference, Philadelphia, Pa., March 2-3.

Wisconsin Utilities Association, Gas Section: Commercial and Technical Divisions—Joint convention and manufacturers exhibit, Schroeder Hotel, Milwaukee, Wis., March 15-17.

Pacific Coast Gas Association—Technical Section Regional Conference, Auditorium of the Los Angeles Gas & Electric Corp., Los Angeles, Calif., March 18-19.

New Jersey Gas Association—26th annual meeting, Berkley Carteret Hotel, Asbury Park, N. J., March 23.

April

American Gas Association, Distribution Conference—Washington, D. C., April 12-14.

Mid-West Gas Association—32nd annual convention, Waterloo, Iowa, April 12-14.

Missouri Association of Public Utilities—Elms Hotel, Excelsior Springs, Mo., April 21-23.

May

Pennsylvania Gas Association—Sky Top Lodge, Sky Top, Pa., May 4-6.

American Gas Association, Natural Gas Department—Civic Auditorium, Kansas City, Mo., May 10-15.

American Gas Association, Production and Chemical Conference—New York City, N. Y., May 24-26.

June

American Gas Association, Industrial Gas Section—Industrial Gas Sales Conference, Chicago, Ill., June 8-9.

Canadian Gas Association — 30th Annual Convention, Chateau Laurier Hotel, Ottawa, Canada, June 10-11.

American Society of Heating and Ventilation Engineers — New Ocean House, Swampscott, Mass., June 24-26.

October

American Gas Association—October 11-16.

American Society for Metals—1937 Metal Congress and Exposition, Atlantic City Auditorium, Atlantic City, N. J., October 18-21.

General Aspects

During the early years of the night school the first courses were more or less specialized and had to do with the mechanics of the job; such courses as Gas Distribution and Utilization, Electricity and Magnetism, and others of a similar nature. Today we have reached a point where the courses in which we have the largest enrollment are Public Speaking, English, Business Law, Salesmanship, and others of a general nature which are at least in part concerned with the relations of the company and its customers. A large percentage of our people have met the need for specialized training related to the job and are now going in for courses that are broadening and not directly tied up with the company's business.

It is interesting to note the various classifications under which the work of the school now falls.

(a) Technical education — for the purpose of improving the skill, knowledge, or ability of the employee in relation to the daily task in which he is engaged. Enrolled last year, 810.

(b) General Education. These courses are offered the employee for the purpose of improving his general education, social habits and activities. Enrolled last year, 932.

(c) Morale education—generally in the form of fostering social activities through the medium of lectures, educational motion pictures, field trips, hobby shows, class banquets, plays, etc. Attendance last year, 12,000.

(d) Health education—classes in first aid, safety motion pictures, trips to hospitals, etc. Enrolled last year, 48.

(e) Promotional or professional education. A form of executive training obtained by group directors, class sponsors, committee members and our own employee instructors. Active last year, 110.

The Evening School session usually extends from October to June. Approximately two weeks before the opening of school a questionnaire is given each employee. These give every employee a voice in the selection of subjects to be offered. It lists the courses that we believe would be best received. Each course subject has a brief outline, tentative dates, district location, etc. A space is provided for suggestions. These

(Contnued on Page 66)

GAS CAMERA

PROSPECTORS. The 60 deserving employees of Public Service Co. of Northern Illinois, Chicago, who uncovered the majority of the company's new business prospects during 1936, were recently taken on a tour of gas appliance manufacturing plants in the Chicago area.

YES! SHE COOKS! Six-year old Barbara Jenkins of Denver, who demonstrated before 5000 visitors to the booth of the Kansas City Gas Co. during the Jubilesta in Kansas City, Mo., will perform during the Midwest Regional Gas Sales Conference in Chicago this month.

TURNING on the HEAT. L. B. Denning, president of Lone Star Gas Co., Dallas, Texas, is shown presenting the President's Trophy to Chester L. May, executive vice-president and general manager of Community Natural Gas Co. and Texas Cities Gas Co., in recognition of the companies' leadership in Lone Star's recent heating campaign.

JOHN J. WINN, JR. (left), new commercial manager of the Portland Gas & Coke Co., Portland, Ore., was welcomed to his western post at a breakfast given by 120 members of the organization. Paul B. McKee, president of the company (right), was toastmaster.

COOKIE COOKERS. Three 4-H Club champions in the food preparation and preservation contest sponsored by Servel, Inc., watch a cookie-making demonstration by Martha Holmes, home service director of the Peoples Gas Light and Coke Co., Chicago. From left to right are Florence Wade, winner; Bonita House, first national winner; Miss Holmes; Marie Meyer, second place.

University of

GAS IN

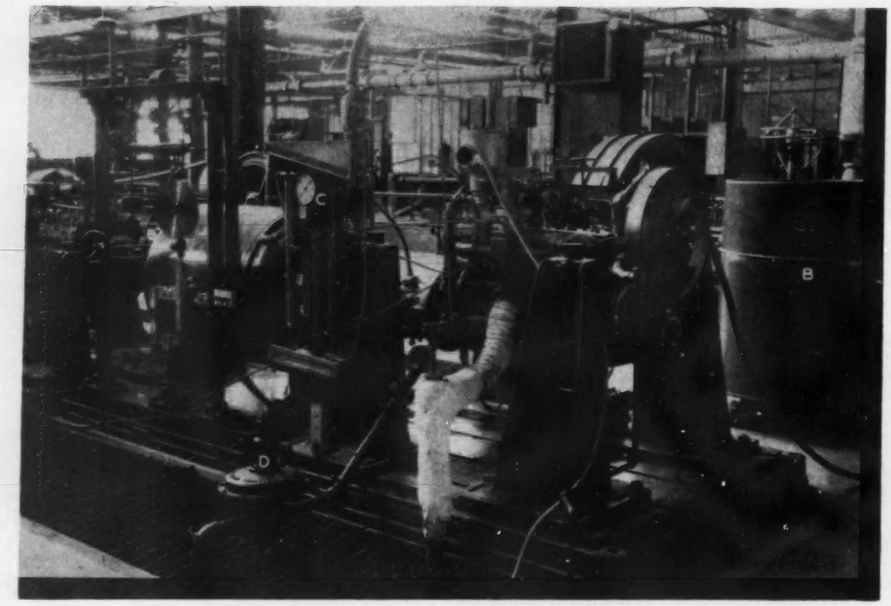


FIG. 1. Apparatus and equipment set up for test.

BECAUSE of the low cost of natural gas, it is possible for small industrial plants such as a creamery, machine shop, or cotton gin with a small power demand to install one or more automobile engines to operate on natural gas and produce power at a lower cost per unit than existing electrical rates will permit. In most cases, the price differential is great enough to make the question of the efficiency of the engine under consideration for installation a minor one, or, in other words, the fuel is cheap enough to offset the cost of installing and buying the engine and its accessories in addition to electrical equipment on hand. However, the price differential between natural gas and electrical power is not the only consideration. Continuity of service, ease of control and operation are not always luxuries but are, very often, good insurance.

Various claims concerning efficiencies, fuel consumption, maximum horsepower and various operating data have from time to time been made by representatives of gas companies, engine and gas-mixing valve builders and operators of stationary automotive engines burning natural gas as a fuel. Some of these claims have been well founded and substantiated by actual tests and others have been poor guesses. Prompted by the lack of definite information, the Department of Mechanical Engineering of The University of Texas undertook this work on a particular engine, the results of which are herein presented. Further tests on the late models of engines are contemplated in the near future.

A 1933 model, L head, 3 x 4¼ inch, eight-cylinder engine of standard make fitted for several of the common makes of gas-air mixing valves and coupled to an electric dynamometer was set up for test with the necessary instruments for measuring temperatures, pressures, and quantities, etc. These tests were made with a view of obtaining some of the characteristics of the engine for comparison with operation of similar units in practice and a comparison of maximum output of the engine in reference to that obtained when operating the engine with gasoline as a fuel. Preliminary tests to determine the inlet gas pressure for subsequent runs covered a range of speeds following the general rule of practice of operating automotive type engines for stationary use at piston speed of about 1000 feet per minute. It will be noted that the curves of Fig. 2 indicate that maximum power is produced at a slight positive pressure, or, in other words, a slightly richer mixture; and best economy is obtained at a slightly leaner mixture. On the basis of the above data subsequent tests were made

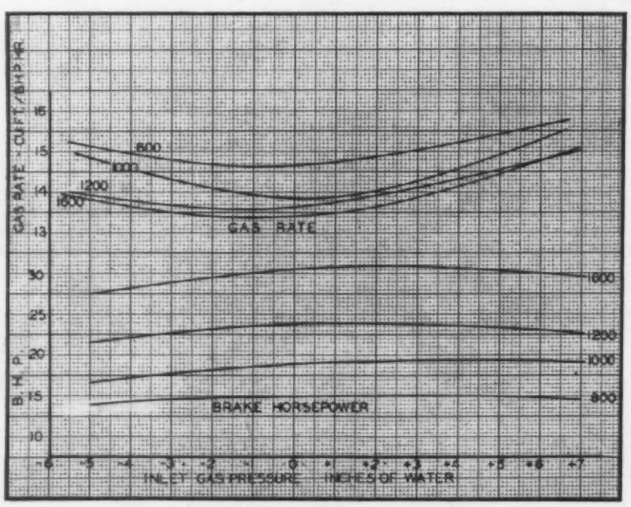


FIG. 2. Effect of inlet gas pressure on horsepower output and fuel consumption.

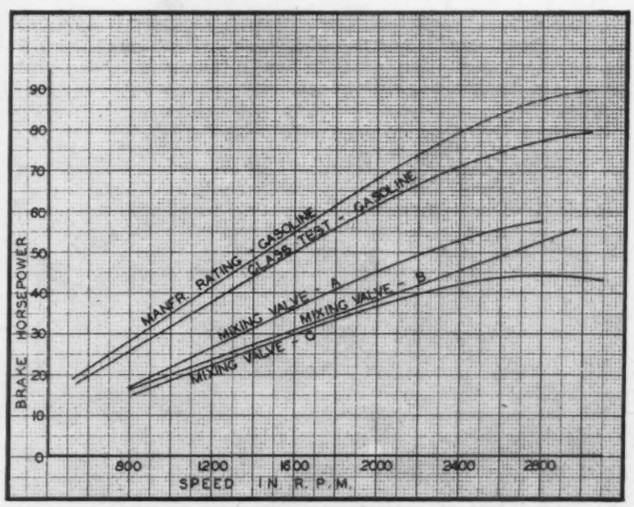


FIG. 3. Comparative horsepower output with gasoline and natural gas as fuels.

Texas Study Outlines Advantages of AUTOMOTIVE ENGINES

By M. M. HELLER and J. H. CAMPBELL

M. M. HELLER
University of Texas

J. H. CAMPBELL
A. M. Lockett & Co.

at a slight positive inlet gas pressure.

The comparative data are represented by the results illustrated in Figs. 3 to 7 inclusive. It is assumed that the engine is correctly designed for the burning of gasoline and that the operating characteristics of the engine when burning natural gas would be expected only to approach those obtained when burning gasoline. The results are, therefore, discussed from the comparative viewpoint of two engines operating under the same conditions with the two fuels. Further graphical comparisons are given to illustrate the attempts that were made to increase the power output of the engine by changes in the time of ignition and temperature of the charge in the intake manifold.

The best conditions obtained with the use of the different gas mixing valves compared to the results as obtained by burning gasoline as a fuel are illustrated in Fig. 3.

The rating of automobile engines may be misleading in the selection of the size of the engine necessary for stationary use and operated on natural gas. The engine under test was rated at 90 hp. at 3000 r.p.m. and developed slightly less power during laboratory test, as indicated, due probably to the difference in gasolines used. The same engine selected for stationary use would probably operate in the range of 1000 feet per minute piston speed, or about 1200 r.p.m. At this speed the rated brake hp. from the curve is 41 brake hp., class test of 38 brake hp. and a maximum range of 22 to 27 brake hp. developed with natural gas using the different mixing valves. This would indicate that for safe practice the maximum load of the engine burning natural gas should be about 20 brake hp. representing an m.e.p. of about 60 pounds per square inch. From the data of Fig. 3, the safe maximum horsepower for an automotive type engine burning natural gas may be expressed as

$$\text{B.H.P.} = \frac{d^2N}{3.5}$$

d = diameter of cylinder in ft.
N = r.p.m.

The variation of the maximum horsepower developed by the engine using the different mixing valves indicates to a certain degree the effective mixing and proportioning ability of the gas and air entering the intake manifold as a mixture. The mixing valve should be designed to properly proportion the areas of opening for the gas and air and should also cause a thorough mixing of the gas and air so that each particle of gas will be surrounded with the proper quantity of air necessary for complete combustion. The accomplishment of both of these requirements at all loads and speeds of the engine has been the goal of carburetor and gas mixing valve builders.

The amount of work that can be derived from a charge of fuel and air drawn into the cylinders of an engine is dependent upon the heat content of the charge, the heat content being a function of the quantity of the charge for a given air-fuel ratio. The volumetric efficiency of an engine, which is the ratio of the volume of the charge drawn into the cylinder per suction stroke to the piston displacement, is a function of the suction and outside air pressure and temperature. Other factors such as the intake, manifold heating, heating effect of the hot clearance gases, and the heat transfer from the cylinder walls to the charge also affect the volumetric efficiency. Of these factors the intake manifold heating effect alone may be altered to some extent without altering the design of the engine. Any attempt to decrease the heat transfer from the cylin-

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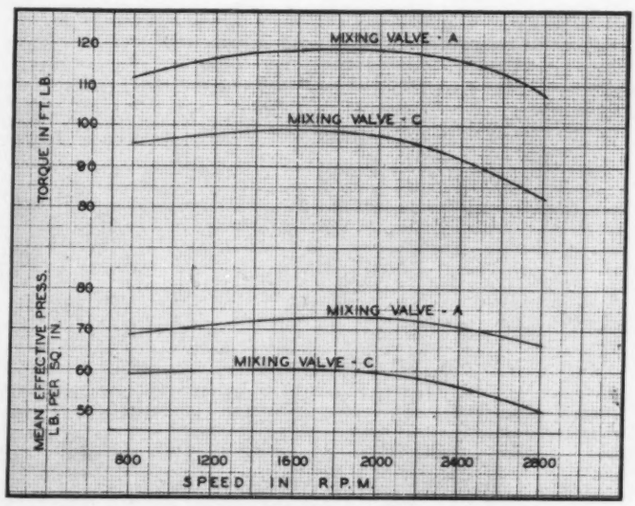


FIG. 4. Relation of mean effective pressure and torque against speed.

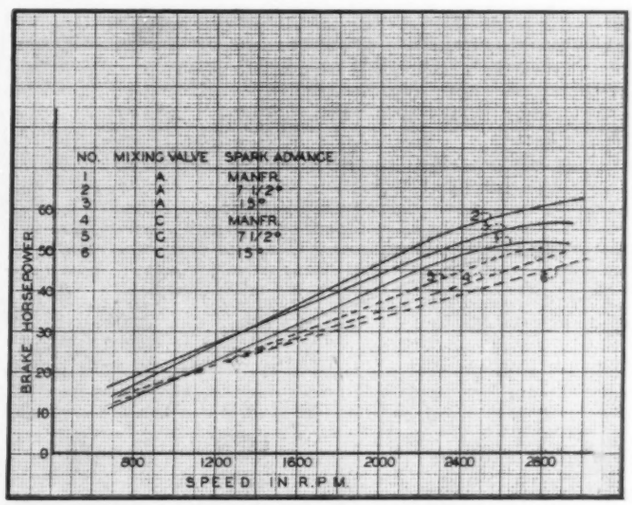


FIG. 5. Effect of varying the time of ignition on the horsepower output.

VERTICAL HOT TUBE ANNEALERS

By LEE WILSON

Lee Wilson Engineering Company

VERTICAL hot tube bell type annealers, utilizing gas fuel, constitute one of the latest innovations in steel sheet mill practice. The feature of these annealers is the system of heating which consists of a series of vertical tubes which are so located as to be inside of the furnace but with the ends protruding through the walls. Gas burners fire into the lower ends and the hot products of combustion exit at the upper. The vertical portion of the tubes are thus heated and the heat is radiated into the interior of the furnace. The furnace proper is known as the cover, for it is lifted on and off a base by crane.

The base is loaded with a stack of sheets and the cover is then dropped down onto the base and the whole made air-tight with a sand seal. These hot tubes take the place of a muffle and the furnaces supersede the old time box annealers which were rolled in and out of large brick and refractory furnaces. While only 24 months old no less than 107 of these vertical hot tube annealers have already been installed in various sheet mills. Although the use of hot tubes of this type has so far been confined to sheet steel annealers, their application to many other kinds of heating is clearly indicated.

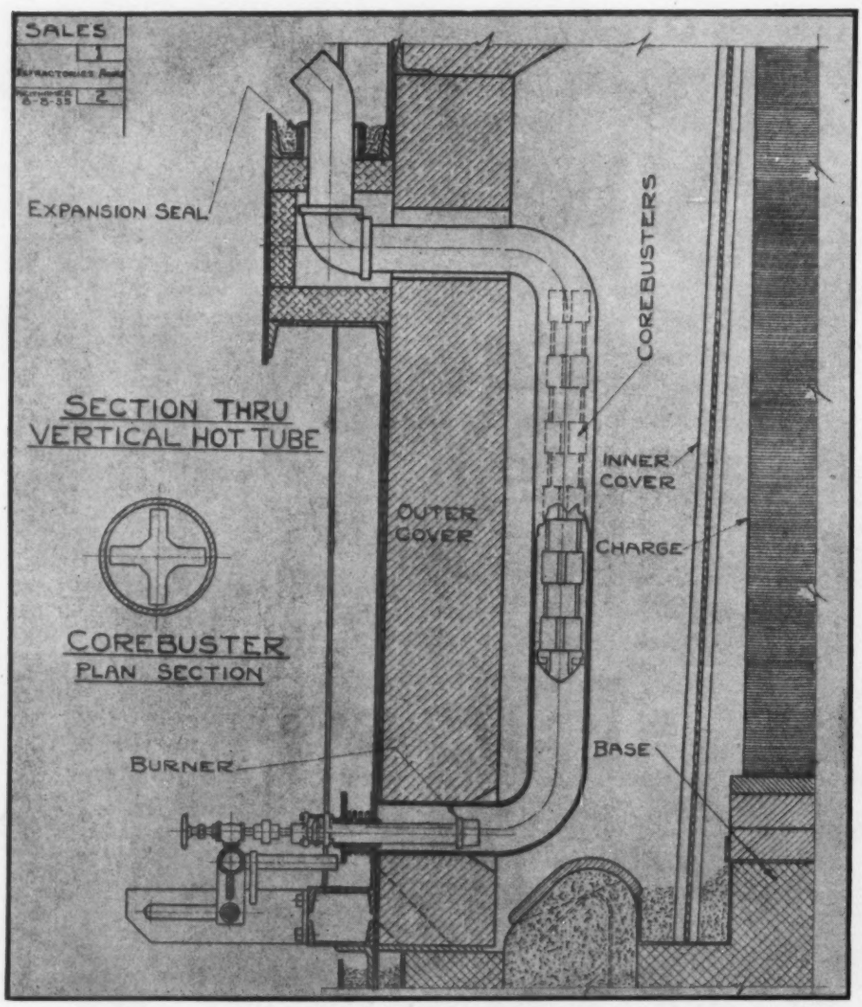


FIG. 1. Section drawing of vertical hot tube annealer

One reason for the unusual acceptance of this annealer is that the vertical heating element allows the fuel to be burned in the lower section of the tube so that a great portion of the heat liberated is radiated to the bottom of the charge where it is most needed. Another is that the first cost of the equipment is about half that of the old-style double-box furnaces and auxiliary equipment.

Sheet steel annealing is a comparatively low temperature operation, around 1300°F., but these vertical hot tubes can be used on any kind of heat treating furnace requiring much higher temperatures, up to and including 1850°F. These new annealers or covers are rectangular in shape and consist of a refractory shell insulated and enclosed in a gas-tight steel case. They are built in six sizes to correspond to the six standard sizes of sheets, ranging from 36 to 84 inches in width and will take stacks 62 inches high.

The vertical hot tubes are located on the side walls of the cover, 6 to 18 on a side or 12 to 36 in all, according to the size of the annealer. The hot tubes are of chrome-nickel alloy and are all alike, each being 4 inches in diameter and 36 inches long between elbows, while the inlets and outlets are 3 inches in diameter. They are made up in three different ways, using fabricated tubes with welded elbows, solid cast elbows and cast elbows welded to the tubes. The gas burners are of the blast type and fire into the lower end of the vertical hot tubes.

A new principle in effecting a greater efficiency in tube type heating is the application of refractory "core busters," a principle developed by our own organization. These are star-shaped baffles, several of which are inserted within each tube to form a chain from the upper elbow to a point about half way to the lower elbow. The dual effect of these core busters is to cause the hot products of combustion to scour the tube, thereby giving up the maximum amount of heat and, at the same time, they become incandescent so that considerable additional heat is forced through the tube by radiation. A third effect of these core busters is to so baffle the tubes that the combustion is completed in the lower portion of the tube, thereby concentrating the greatest amount of heat at the bottom of the furnace where it is vitally needed.

This principle of applying the heat of combustion at the bottom and utilizing

(Continued on Page 50)

ILLUSTRATIONS

AT RIGHT. Pacific Coast Gas Association advertisement appearing in architectural magazines. BELOW: An example of the advertising directed to the domestic consumer.

Domestic Appeal Featured In P.C.G.A. Ninth Regional Gas Advertising Drive

By A. C. JOY

Chairman, Co-operative Advertising Committee
Pacific Coast Gas Association

WITH its publication advertising budget increased by approximately one-third over 1936, and with new plans for co-operative production of sales-promotion literature, the gas industry of the Pacific Coast has entered its ninth consecutive year of joint regional advertising, under the sponsorship of the Pacific Coast Gas Association.

The most consistent co-operative campaign ever conducted by the gas industry (perhaps unequalled by *any* other industry advertising regionally), this program has continued without interruption since early in 1929.

As heretofore, the advertising will be closely synchronized with sales plans of participating gas companies, who absorb all costs, although appliance manufacturers and dealers share the benefits.

Special emphasis is placed this year upon domestic consumer advertising, with a new "theme" to lend drama and human interest to sales messages featuring gas cooking, heating, water heating and refrigeration.

SAYS FATHER: "WELL! IT'S FORTUNATE THIS FAMILY HAS AN AUTOMATIC GAS WATER HEATER"
WATER HEATING • COOKING • HEATING • REFRIGERATION

Through special arrangements with Twentieth Century-Fox studios, the P. C.G.A. Co-operative Advertising Committee has access to photographs posed by members of the famous Jones Family cast ("Educating Father," "The First Baby," "Off to the Races," etc.), featuring such well-known actors as Shirley Deane, Dixie Dunbar, June Carlson, Jed Prouty, Spring Byington and Kenneth Howell.

Various members of the cast, shown in modern home surroundings with different gas appliances, appear in humorous or typical "American family" situations, around which the sales messages are written.

These advertisements, all in full-page size, are appearing in *Sunset Magazine, California Parent-Teacher, California Federation News, Parent-Teacher Journal* and *California Homes.*

Typical of the new series was the first advertisement on automatic gas water heating, showing "Father" Jones and five offspring, in various stages of undress and carrying towels—all lined up outside the bathroom door. Says Father (at the head of the line), "Well! It's fortunate this family has an automatic gas water heater." The message continues, "Father should provide two bathrooms, but even then his big family would have plenty of hot water—thanks to a gas automatic with ample capacity for peak demands." The convenience, comfort and economy of gas water heating are stressed.

A special feature of the 1937 domestic campaign is a two-page insert in four colors appearing in the new *California Homes Plan Book*—a bound volume of 100 home plans. This insert features the "All-Gas Home—Modern Today and Tomorrow" and is beautifully illustrated.

As in the past, the co-operative advertising is being produced under the direction of the P.C.G.A. Co-operative Advertising Committee. A. C. Joy, advertising manager, Pacific Gas and Electric Co., is chairman. He is assisted by three other utility advertising directors: J. S. Spaulding, Los Angeles Gas & Electric

The Pacific Coast campaign features advertisements appearing in (left) "Dealer's Advertising" and (right) "Western Machinery & Steel World."

Corp.; Douglas Buckler, Southern California Gas Co.; and Forrest Raymond, San Diego Consolidated Gas & Electric Co.—all co-operative activities clearing through the office of Clifford Johnstone, managing director of the Association. (Attention is called to the Committee's informative "Bulletin Board" appearing as a full page—see Page 62—in this and every issue of *G A S*.

The Committee is also conducting other "campaigns within the campaign," one division directed to gas appliance dealers (retailers and plumbing and heating contractors), another to architects and builders. In addition, trade journal advertising is appearing in the following commercial and industrial classifications: commercial cooking; baking; dry cleaning; beauty shops; machinery and steel.

In all, 21 Pacific Coast publications are carrying the P.C.G.A advertisements this year.

California—Magazine of Pacific Business, the new publication of the California State Chamber of Commerce, is receiving a schedule of full pages directed to industrial management and business executives.

The P.C.G.A. "News Service" which has been so successful in publicizing gas and gas appliances during the past years, is continuing and enlarging its activity during 1937. Through co-operation with editors in supplying interesting news and accurate technical data, this co-operative bureau has secured the publication of an average of 140 articles a year, many of these being illustrated features.

Following is the P. C. G. A. co-operative advertising magazine schedule for 1937:

Domestic	
Sunset Magazine	12 pages
California Parent-Teacher	12 pages
Parent-Teacher Journal	6 pages
California Federation News	12 pages
California Homes	12 pages
California Homes Plan Book (annual)	Color insert
Appliance Dealers	
Western Furniture Retailing	12 pages
Western Plumbing & Heating Journal	1 page; 11 ⅔-pages
Architects, Builders	
Architect & Engineer	12 pages
California Arts & Architecture	12 pages
Commercial Cooking	
Pacific Coast Record & Western Restaurant	12 ⅔-pages
Keeler's Pacific Hotel Review	6 ⅔-pages
Western Hotel Reporter	6 ⅔-pages
Western Confectioner & Ice Cream News	12 ⅔-pages
Commercial Baking	
Western Baker & Pacific Baker	12 pages
Beauty Shops	
Western Beauty Shop	6 ⅔-pages
Machinery, Steel, Foundries, Etc.	
Western Machinery & Steel World	12 pages
Dry Cleaners	
Pacific Laundry Journal & Dry Cleaner	12 ⅔-pages
Business Executives	
California—Magazine of Pacific Business	6 pages
Building Officials	
Building Standards Monthly	1 page; 5 ¼-pages

Through this campaign, the Gas Companies employ efficiently and economically, media which because of general circulation, are not suited to local use, thus supplementing their own localized advertising by a general or "background" campaign which conflicts neither with individual coverage nor with the industry's national advertising.

Since all of the trade journal subjects feature actual installations and testimonials, every message carries local interest and conviction impossible to convey through generalized advertising.

The enlarged coverage of the 1937 P.C.G.A. campaign is indicated by the total combined circulation of all magazines on the co-operative schedule: 369,000, or an estimated 1,107,000 readers. Multiplying the readers by the number of insertions discloses a total of over 11,000,000 "impressions" during the current twelve months, publicizing gas as "The Modern Fuel" and promoting the sale of all gas appliances.

■ ■

Selling National Industry On the Houston Area

(Continued from Page 20)

"A very extensive and valuable territory," said Austin; and our advertisement repeats the news for the benefit of industry. Each advertisement in the group urges the consideration of the Texas Coast country as an industrial location and invites requests for one of the specially prepared surveys.

Trade paper advertisements, as would be expected, are much more direct in their message. They tell a plain, quick story of the natural resources of South Texas, show a map of the region, and include an invitation to send for a survey.

The direct-by-mail campaign is not, in the usual sense, advertising. It consists of personal letters addressed to the top executives of those industries which would find it advantageous to locate on the Texas Coast. Each letter is, however, accompanied by a reprint of one of the advertisements and reiterates the invitation to send for a survey.

Has the campaign been successful? It has. The demand for surveys has been constant and brisk. We know that our story is reaching the people we want it to reach. Concrete results have demonstrated this. And in Texas itself, results have not been negligible; our advertising has attracted much favorable attention from our customers, from magazines, newspapers and commercial organizations, who, like ourselves, are interested in developing the latent industrial possibilities of South Texas.

We feel that our advertising effort can be properly considered as a laboratory experiment that has demonstrated its practical utility.

Pressure Telemetering And Remote Control

• **WM. A. LA VIOLETTE, Pacic Gas and Electric Co., San Francisco, Calif.; addressing Technical Section, Pacic Coast Gas Association Annual Convention, San Francisco, Calif., August 25-28, 1936.—(Abstract by G A S).**

WHAT distinguishes telemetering (whether electrical or other) from mere measurement at a distance is the conversion of an already measured magnitude into one which is readily transmittable. The expression "telemetering system" is preferable to "telemeter" because it denotes the separate performance of measuring, transmitting, and receiving. There are several broad classifications or groups of telemetering systems which are described by the magnitude of the electrical message. The American Institute of Electrical Engineers has recommended that the systems be classified as follows: Current, Voltage, Frequency, Position, and Impulse.

W. A. LA VIOLETTE

The Current System: As its name indicates this class of system is that in which the transmitted electric variable is a current (usually direct current). The value of this transmitted current is a function of the measured magnitude.

Current class systems have transmitting sections wherein the torque produced by the measured magnitude is actually opposed and balanced by the reaction in an electrical movement or circuit. Any deflection of the primary measuring elements such as a bourdon tube, causes the relay mechanism to adjust a current flowing in the circuit of the opposing element and the result is that there flows in this circuit a current representative of the measured magnitude. Since the relay device keeps the current proportional to the torque developed in the measuring element, circuit resistance does not affect the performance so long as sufficient voltage is available to force current of the desired value through the resistance.

Voltage Class. This type of telemetering system employs a principle which consists of producing at the transmitting end of an interconnecting circuit an electromotive force representative of the measured magnitude and of performing the measurement of this voltage at the receiving end. Where the measurement as expressed by the primary measuring unit takes the form of a physical deflection of a moving part (such as a bourdon tube), conversion of this deflection into representative voltage may be accomplished in several ways, for instance, the use of a motor driven rheostat. Electronic tube circuits have been used with a varying degree of success due to their inherent characteristics in some respects of unstability.

Frequency Classification. The frequency of an alternating current is reproduced with unerring precision at all points in a circuit in a very precise manner, which makes it an ideal carrier for a telemetering system, regardless of distance or line characteristics.

The first requirement of a telemetering system using the frequency principle is that there be a source of alternating current whose frequency of alternation is capable of being varied in a definite relation to the changes of the primary measuring element. With the introduction of electronic tubes it has been possible to use this method of transmitting a record with a degree of accuracy and dependability heretofore impractical because of control problems. An all-electronic telemetering system has been developed for operation by either wire or radio with the mechanical devices required for its actuation by gas or liquid pressure, using as the translation medium a voltage of variable frequency, acting upon a voltage independently received requiring practically no signal input power. This method is adapted for the operation of several receivers from one transmitter and the possibility of switching one receiver onto any one of several transmitters.

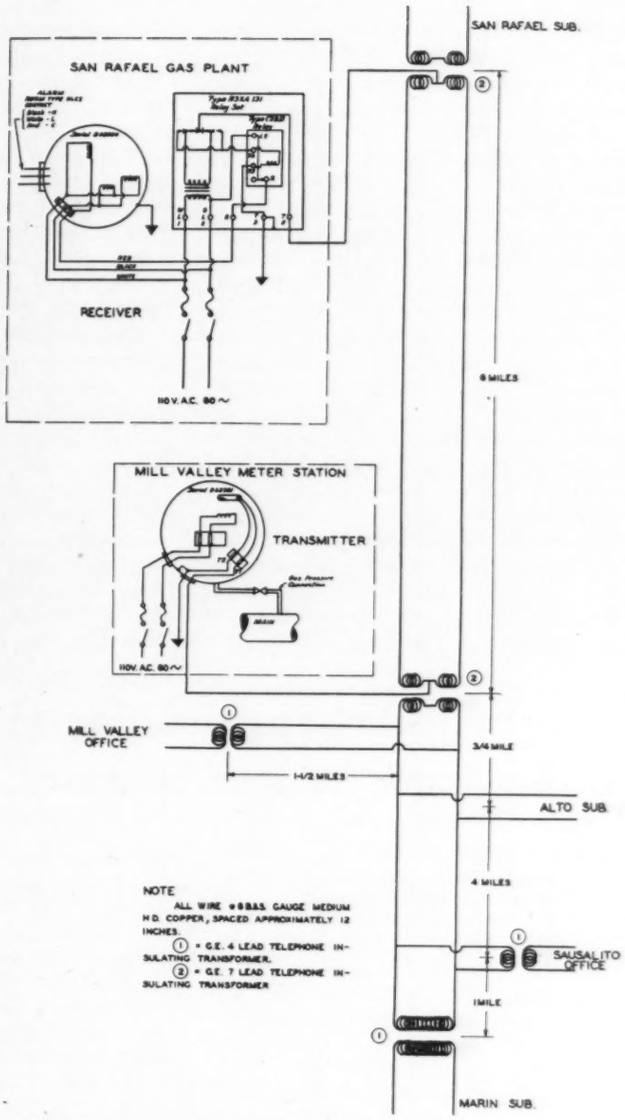


FIG. 1. TELEMETERING SYSTEM USING IMPULSE TYPE OF CIRCUIT.

Position Class. By reason of the diversity of their types position systems have few common features and characteristics.

In general, position systems require three or more conductors in the interconnecting circuit. Therefore, the distance over which they may operate is economically limited. The utilization of existing telephone lines with this type of telemetering system involves many complications. The conditions of balance are seldom realized where, even with one conductor in a ground circuit the lines may be used for other purposes. Precision of indication and quick response are the redeeming features of "position" systems. They lend themselves readily to the telemetering of the measurements of magnitude or position as the height or status of a valve stem, a regulator arm, and many other applications. This

system has been developed to a degree that the transmitter and receiver are of such proportions that they are capable within themselves of physical control.

Impulse. Systems of telemetering using a timed electrical impulse have been developed. The quantity whose value is to be indicated or recorded at a remote point is measured by a suitable element which forms a part of the transmitting instrument. This transmitter successively opens and closes an electrical circuit, being opened at uniform intervals of time, the time of closure being governed by the value of the measure magnitude. The total time of each interval is thus divided into two periods —one of open circuit and one of closed circuit. During this latter period the current flowing through the circuit constitutes the "impulse."

An illustration of a telemetering system using the impulse type of circuit is shown in Fig. 1. By means of a simplexing system the company's private telephone lines were used as one leg of the circuit with the other being connected through ground. In this manner the telephone communication service was unhampered. The Mill Valley Motor Station is an unattended distributing junction from which a tap is taken to feed the town of Mill Valley. The main transmission line has its terminus at Sausalito. Located at the outer limits of the town is an industrial consumer whose demand is many times greater than that of the town. Because of the indeterminate nature and period of the load requirement it was necessary in the past to hold an excessive pressure in the line which is controlled at the San Rafael Gas Plant, about 12 miles away. With the advent of the telemetering system it has been possible to materially reduce line pressure with its attendant lowering of line losses and an increased facility of control because of the removal of time lag, the deterring factor of all long distance transmission networks.

The Installation and Servicing of No-Tank Water Heaters

● **R. D. STUART, JR., Sales Manager, Fall River Gas Works Company, Fall River, Mass.; addressing Operating Division, New England Gas Association, Boston, Mass., January 8-9, 1937.—(Abstract by G A S).**

A RECENT survey of the Fall River area showed that considerably over 70 per cent of the homes had no running hot water facilities. They, of course, had all the ordinary fixtures supplied with cold water but had to carry hot water to them in a teakettle. Practically all of these customers live in two to six family buildings, the most typical arrangement being one large general living room and dining room, which is used for all other daytime purposes. The real kitchen is in a pantry or small room off this general living room, containing a four-burner range, a sink with a shelf on the side, and cupboards above often extending over the sink as well. The bathroom in many cases adjoins this small kitchen as another room off the general living room.

This typical arrangement called for the installation of a sink type water heater. All experience to date has been with the No-Tank, put out by the United American Bosch Corp. This heater weighs about 13 or 14 pounds, and can either be fastened directly to a cold water faucet or set off to the side; if fastened directly to the cold water faucet it is just screwed on and two faucets are provided on the heater, one cold and one hot, the water coming out of a single spout. If the heater is set slightly to the side, swing spouts are provided to carry the water over to a point directly over the sink; if some distance to the side, tubing may be run from a back connection on the heater over to a regular faucet on the sink. With this arrangement the faucets on the heater are not used at all. This back connection also permits running tubing to other fixtures in addition to the kitchen sink. If a single partition separates the bathroom from the kitchen, 4 or 5 feet of ⅜-inch tubing through the wall will often reach the bathtub, and the faucet on the tub operates the heater.

From the standpoint of safety, the consideration of most importance was of course the possibility of carbon monoxide production. It is impractical to flue connect the heater in all its various locations. The No-Tank, however, has no coils for the flame to impinge on, practically all the heat transfer being accomplished by a fin section at the top of the heater and the flame has an unobstructed combustion chamber all the way from the bottom to the top. Barring the possibility of the fin section becoming clogged with soot it seemed impossible to produce carbon monoxide under any adjustment. It has a yellow flame so that the only adjustment is input. As supplied by the manufacturer it will consume up to 110 cu. ft. per hour at 5-inch pressure so a disk, drilled No. 18 M.T.D., is placed in the gas inlet to restrict the flow to the neighborhood of 60 cu. ft. per hour.

The heater must not be installed in a bathroom or any other small room which might be closed at any time; in the case of the small kitchens, however, the doorways are always open.

No heater may be installed under a shelf of any kind. This is to provide adequate draft rather than for fire protection. Many times the customer will permit the shelves to be cut away to provide a convenient location for the heater.

Every heater must be installed at its point of most frequent use, to allow observation. It has been found impracticable to connect a heater into existing housepiping. The heater will give surprisingly good service if supply is made a long way to a tub through ⅜-inch O.D. tubing but the water gets lost and cold in regular ½- or ¾-inch house piping.

Regarding service troubles, an analysis of 279 customer calls in 44 working days with 1000 heaters installed shows that the majority of calls were more a matter of getting the customer started off right than anything else. The detailed story on these complaints is as follows: water not hot enough, 56 per cent; heater won't operate, 28 per cent; miscellaneous other complaints, 16 per cent.

The most significant indication of just how satisfactory in operation the heater really is may be had from the number that have been removed since this service was started. The heaters were put out on a rental basis with no down payment and no strings attached. There was nothing to prevent any customer at any time and for any reason ordering removal of the heater. However, with the 1354 installations there have been only 17 removals to date.

■ ■

Channel Gas Corp. to Lay Line From Dickinson to Houston

THE commissioners' court of Galveston, Texas, has granted a franchise to the Channel Gas Corp. to lay a pipe line from the Dickinson field, near Dickinson, to Houston, crossing Clear Creek near Kemah.

The Channel Gas Corp. recently was awarded a contract by the city of Houston to sell gas to the city-owned Magnolia Park plant at the rate of 20 cents per 1000 cu. ft. Under a ten-year franchise, just expired, the city has been buying gas for the Magnolia Park plant from the Houston Gulf Gas Co. at 27 cents per 1000 cu. ft.

H. C. Cockburn, president of the recently organized Channel Gas Corp., has been negotiating with the Houston city council for a franchise to bring gas into Houston for sale to industrial consumers. No action has yet been taken by the council.

So. Counties Passes $1,000,000 Mark in Appliance Sales

CELEBRATING more than a million-dollar year in the sale of gas appliances, the sales department of Southern Counties Gas Co., Los Angeles, Calif., held a dinner on January 14 at the main office.

During 1936, the company's sales of gas equipment reached the all-time high of $1,156,166. It was the first year during which its appliance sales exceeded the million mark. They surpassed by nearly $275,000 the record set in 1935 when gas appliance sales amounted to $882,614. In 1934, appliance sales made by Southern Counties totaled $500,838; in 1933, they were $361,613.

Speakers included Dr. Frederick P. Woellner of the University of California at Los Angeles; F. S. Wade, president and general manager of the company; LeRoy M. Edwards, general counsel; Norman R. McKee, vice-president in charge of sales; Dr. F. E. Vandaveer of the American Gas Association Testing Laboratories, Los Angeles; Frank C. Packer, Welsbach Co.; E. B. Hanmer, American Stove Co. Clyde H. Potter, Southern Counties commercial manager, was toastmaster.

A parchment scroll, designed to represent $1,000,000 in appliance sales, and signed by all salesmen and commercial managers of the company, was presented to Mr. Wade. The presentation was made by Mr. Potter.

■ ■

Reynolds Succeeds Dougherty As Chattanooga Sales Head

ORIN F. REYNOLDS, for 12 years chief engineer and head of industrial and commercial sales for The Chattanooga Gas Co., Chattanooga, Tenn., has been appointed sales supervisor of the utility, according to an announcement by A. J. Goss, vice-president and general manager of the company. He succeeds C. E. Dougherty, who has held the position for 14 years.

Mr. Dougherty resigned in order to give all his time to the Chattanooga Button and Badge Manufacturing Co., which he took over in October. Before joining the gas company he was associated with Mr. Goss, in Ottumwa, Iowa.

Mr. Reynolds has appointed Robert S. Kinzalow in charge of commercial and industrial sales, and Guy P. Newbern as assistant in charge of domestic sales.

■ ■

Collins Given Managership Of Silver City Gas Co.

LEA COUNTY Gas Co., Silver City, N. M., has appointed C. B. Collins, formerly with the El Paso Natural Gas Co., as resident manager in Silver City, according to announcement by C. C. Tucker, vice-president and general manager.

Mr. Collins succeeds Douglas Callicotte, who resigned to enter business for himself. The new manager in Silver City has been connected with the natural gas industry for 25 years.

Natural gas which was brought to Silver City during the latter part of 1936 comes to Silver City through a 47-mile, 5-inch transmission line constructed by the El Paso Natural Gas Co.

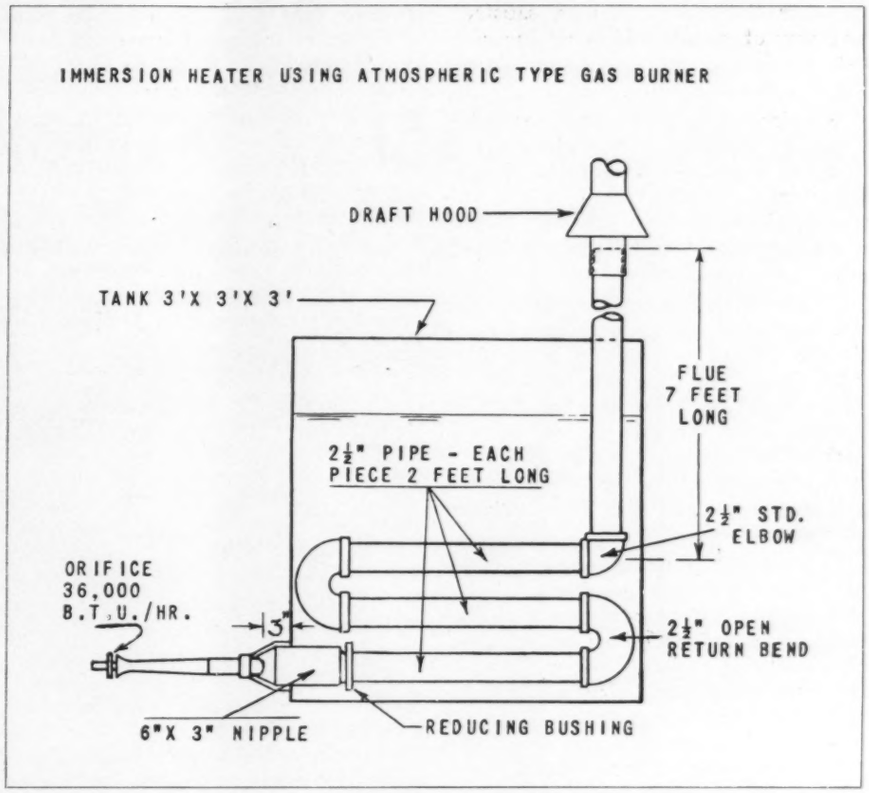


FIG. 1. Immersion heater using atmospheric type gas burner.

Immersion Heating of Liquids Has Advantages Over Other Methods

● **C. G. SEGELER, Engineer of Utilization, American Gas Association, in Industrial Service Letter Number 26, issued November, 1936, under title "Immersion Heating of Liquids."—(Abstract by GAS).**

WHEN compared with underfired tanks, immersion heaters show definite advantages. Insulation may be easily applied on all sides and the bottom of the tank. Since a greater area of the tank is covered at all times, the standby losses are lower and effectiveness of the insulation much increased. Unless underfired tanks are specially designed, with a raised bottom over the burner, there is difficulty with the sediment which collects on the bottom of the tank. Not only does the sediment reduce the heat transferred through the tank wall but when it builds up thick enough the metal is overheated and will break down rapidly. Immersed coils are arranged to give a sediment space between the coils and the bottom of the tank. Any sediment falls between them and collects on the relatively cold tank bottom.

Higher overall efficiencies are indicated when a comparison is made between immersion heaters and steam supplied from a central power plant or heating system. Long lengths of steam piping necessary in the latter systems will result in heat losses which do not add to the useful output of the plant. In general, there is greater investment required in steam piping and especially in condensate return systems where collecting tanks, steam traps, and pressure controls are required. A battery of individually gas-fired tanks will show greater flexibility and smaller heat losses during the relatively slow periods of plant operation. With central steam operation, the heat loss from piping will continue during the relatively idle periods. During periods of reduced activity, one or two gas-immersion-fired tanks may be turned on to carry the limited amount of work through.

For new installations, the space required for a central boiler installation might be used to more advantage for other purposes. Direct gas fired tanks eliminate the need for boiler space and fuel storage required for the crude fuels. In some plants, the steam boiler may be overloaded during periods of maxi-

mum steam demand. A most satisfactory way of getting additional capacity is to install gas immersion heated cleaning or processing tanks.

Wooden tanks can be effectively heated by gas immersion units whereas underfiring would not be possible. Heating crocks or other small vessels by placing them inside of another larger immersion heated tank is a novel but often useful application.

A typical heating surface consists of standard pipe and fittings placed near the bottom of the tank to be heated. The gas burner fires into one end of this coil, which is clamped in place in a hole drilled through the side of the tank. The other end consists of a vertical length of pipe which acts as a flue and serves to pull the flue products through the coil.

U coils are practical and must be used when it is not possible or desirable to drill through the walls of the tank. This is typical for many types of acid plating tanks. However, U coils are more difficult to design and operate and, therefore, some precaution should be exercised in using them with atmospheric equipment. The maximum possible flue height is recommended.

Gas-fired immersion heating tubes can be used with either atmospheric burners or with pressure burners. From a technical viewpoint, there are a number of advantages which would favor the use of the pressure type burners. However, the atmospheric type has the greatest sales appeal for many installations because of simplicity and lower first cost. Many prospects for gas immersion heating exist in smaller establishments that have not the immediate financial resources to invest in a pressure type unit carefully designed by the manufacturer of immersion heating equipment. It would be impossible under these conditions to reach this market with sufficient equipment in many instances, and a properly constructed and entirely satisfactory atmospheric type of unit can be assembled by a local welder from relatively simple plans, and when no attempt is made to crowd too much gas into it, the results can be made very satisfactory. Fig. 1 shows a successful arrangement for an immersion heater using an atmospheric type burner.

The sales possibilities for complete gas units designed and built by equipment manufacturers should not be overlooked. Stock sizes of liquid heating tanks equipped with immersed gas heating tubes are available. In addition, these manufacturers could furnish special sizes and designs for specific heating problems. A typical example may be found in the application of gas-fired immersed pipe heaters to mechanical washing machines.

Essentially, these machines consist of a tank for the storage and heating of the cleaning solution, a conveyor to carry the work into a washing zone and a pump and nozzle system to direct powerful jets of liquid against the work to be cleaned.

An added feature of the machine is the arrangement for drying the work after the cleaning operation. The hot waste gases from the immersed coils are blown against the passing work at the outlet end of the conveyor. An air shutter on the suction of the blower allows the operator to control the amount of fresh air admitted into the drying ducts. Thus the drying temperatures can be varied from 200° F. up to practically the final temperature of the waste gases.

Increasing Gas Sales By Following New Construction

● **PAUL C. KUNTZ, Los Angeles Gas and Electric Corp., Los Angeles, Calif.; addressing Sales and Advertising Section, Pacific Coast Gas Association Annual Convention, San Francisco, Calif., August 25-28, 1936.—(Abstract by G A S).**

IN new construction, the Gas Industry is most vulnerable to competing services. The causes are legion. Predominating, perhaps, is the human trait of desiring "something different." This desire is being increasingly stimulated by competing services—too frequently by exaggerated claims. Time is the essence of the industry's problem; the interview of its representative must be synchronized with the planning of the new home.

What steps are we taking to reach new construction? This question, first of all, implies a system whereby we know in advance of construction that a new home is contemplated. Obviously, to be most effective, such a system must have centralized control; all information and leads must gravitate to one point for segregation to sales districts or territories. The gathering of this prospect information is accomplished by our company in the following manner:

1. Operating in metropolitan Los Angeles, one employee is assigned to full time duty at the Department of Building and Safety located in the City Hall. Ordinances require that a permit be taken out or plan submitted for any structure to be erected or any alteration contemplated to an existing structure within the incorporated area. In smaller cities and unincorporatd areas outside the City of Los Angeles, at least daily contact is effected with the local office issuing the building permits in such districts. This practice insures knowledge, at least in advance of actual commencement of building operations, of all new homes to be erected.

2. Perhaps the next most productive step in reaching new construction is the activity of the individual salesman in his particular sales territory. Among other things, this activity consists of the following: (a) Cultivate acquaintance of active realtors, architects, building, wiring, and plumbing contractors, and material dealers. Through these people valuable prospect information may be obtained. (b) Patrolling his district systematically, noting lot-clearance operations, removal of signs and sign-boards, fences, trees, etc., and demolishing or removal of buildings. (c) Participating in Business and Civic Association activities within his district.

3. A well-organized cooperative program among employees and their families, reporting all contemplated building of which they may gain knowledge.

4. Careful scrutiny of all building trade journals, daily newspapers, Chamber of Commerce bulletins, etc., for information of contemplated building.

5. Appliance displays and appliance counsellors. The Los Angeles Gas and Electric Corp. has six major appliance display rooms in its main and district offices. At each of these major displays appliance counsellors are maintained. Here, expert and impartial advice on all types of gas appliances may be obtained, and here, also, the seeds of desire for ownership of modern appliances for the new home are often first sown.

6. Kitchen planning service. This service is intimately tied in with appliance displays and counselling. Arrangement plans for kitchens are submitted to prospective home builders to meet any requirements.

7. A kitchen-planning counsellor may make personal calls on prospective home builders upon request, as well as on architects.

8. Architectural service. A special bureau has been established, consisting of two full-time employees trained in the fundamentals of architecture.

9. Speculative builders and owner-builders. Here are two separate classes of builders, and each requires different sales technique. The former builds for sale on the open market, and knows not who his buyer may be. To him, any-

(Turn to Page 34)

And Now . . .
A six burner DETROIT JEWEL and GARLAND Gas Range

THAT WILL MAKE 1937 GAS RANGE HISTORY FOR GAS COMPANIES AND DEALERS

THIS new DETROIT JEWEL and GARLAND model marks another triumph in perfected design, in ultra-smart appearance, in thoroughly modern convenience and use-economy features . . . Note the impression of solidity and smoothly flowing beauty it gives at a glance . . . Note the Robertshaw Heat Control with THERMAL EYE . . . To mention only a few of multiple features: six chrome top burners, all with simmer; sanitary oven tray; pastry oven under cooking top; smokeless broiler with chrome pan and rack; extra heavy insulation; new style top grates.

Join the rush to get in on the immediate volume and profit opportunities of this and other GARLAND and DETROIT JEWEL 1937 gas range models. Make 1937 your best gas range year—as it easily can be! Write, wire or phone for full details!

DETROIT MICHIGAN STOVE CO.

DETROIT, MICHIGAN

thing which adds salability to the home is important. He sees the opportunity to capitalize on the claims of "Modernity" so widely publicized by the Electric Industry, and he points out these features to prospective buyers. The owner-builder can be contacted with our first knowledge of his intention to build, and, consequently, offers a less difficult sales problem. It is obvious that speculative buildings must be closely followed, and those where provision has been made for range and water heater wiring demand special attention.

10. Miscellaneous advertising, cooking schools, bill stickers, counter literature, etc.

Experience with the Prospective Home Builders Service of the Natural Gas Bureau warrants mention at this time. One function of this Bureau is to contact individuals or companies constructing "display homes" or so-called "model homes," and to cooperate with them in having gas equipment used. Through these display houses those who are about to build get ideas for their construction, and repeatedly gas installations result. Another function of the Natural Gas Bureau is its arrangement of displays of modern gas appliances at the County Fair, the National Orange Show, and numerous other similar shows which occur periodically.

Natural Gas Department Committees Plan Details of May Meeting

By CHAS. D. GREASON

Chairman, Publicity Committee, Natural Gas Department Convention

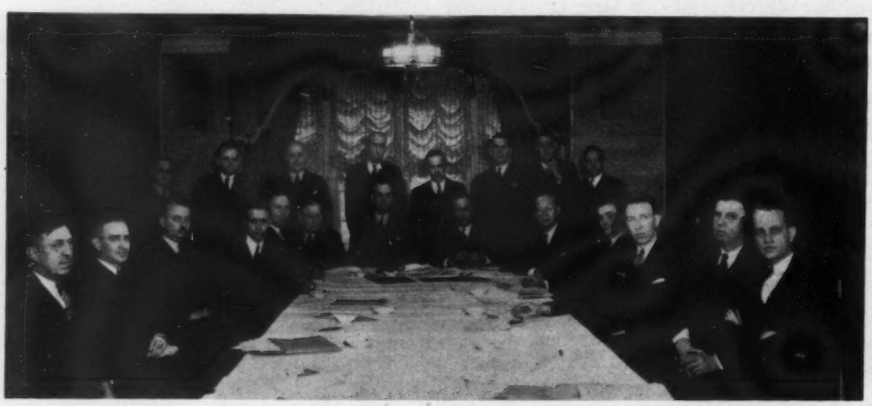
COMMITTEES of the Natural Gas Department of the American Gas Association are planning what promises to be the biggest natural gas convention the department has ever held. The convention will be held in Kansas City, in the city's new six and one-half million dollar auditorium, beginning Monday, May 10, and extending for five days, closing on the fourteenth. The committees expect a registration of at least 3,000. Major T. J. Strickler, general manager of the Kansas City Gas Co., will serve as general chairman of the convention.

The Association of Gas Appliance and Equipment Manufacturers will hold an exhibit during the Kansas City convention, this being the first exhibit held at a Natural Gas Convention since the 1929 meeting in Kansas City. It will be the first exhibit held by the new Association of Gas Appliance and Equipment Manufacturers at a Natural Gas Convention.

A tentative program for the convention already has been outlined. Program committees appointed by George E. Welker, chairman of the Natural Gas Department; Robert W. Hendee, vice-chairman, and Capt. A. E. Higgins, secretary, met in St. Louis, Mo., Thursday, January 21, deciding on topics to be discussed on both the general session programs and at the sectional meetings. At this meeting the speakers were selected.

Natural gas men who attended the S. Louis meeting are shown below. Around the table reading, left to right, are: W. F. Hartwig, United Gas System, Shreveport, La.; Julian F. Foster, Lone Star Gas Co., Dallas, Texas; G. M. Parker, Mississippi River Fuel Co., St. Louis, Mo.; Floyd C. Brown, Natural Gas Pipeline Co., Chicago; J. Frank Robinson, Peoples Natural Gas Co., Pittsburgh, Pa.; Edgar G. Hill, Ford, Bacon & Davis, Inc., New York; Robert W. Hendee, Colorado Interstate Gas Co., Colorado Springs, Colo.; A. E. Higgins, Secretary, Natural Gas Department, A.G.A., Dallas, Texas; W. Jennings Young, Oklahoma Natural Gas Co., Tulsa, Okla.; C. D. Byrd, Association of Gas Appliance and Equipment Manufacturers, New York; F. D. Bradley, Southern Union Gas Co., Dallas, Texas; Ben F. Pickard, Laclede Gas Light Co., St. Louis, Mo., and Ray T. Ratliff, Kansas City Gas Co., Kansas City, Mo.

Standing, left to right: J. H. Dunn, Lone Star Gas Co., Dallas, Texas; E. L. Rawlins, United Gas Public Service Co., Houston, Texas; Eugene D. Milener, A.G.A., New York; J. F. Curry, Panhandle Eastern Pipeline Co., Kansas City, Mo.; Chas. D. Greason, The Gas Service Co., Kansas City, Mo.; Robert D. Lewis, Laclede Gas Light Co., St. Louis, Mo.; Paul C. Ford, Kansas City Gas Co., Kansas City, Mo.; and J. M. Graybill, Laclede Gas Light Co., St. Louis, Mo.



Planning the American Gas Association Natural Gas Department convention at a January conference in St. Louis.

All preliminary arrangements for the manufacturers' exhibit and for meeting rooms in the auditorium were made early in January by C. W. Berghorn, executive secretary, Merrill N. Davis, vice-president of the Association of Gas Appliance and Equipment Manufacturers, and Captain A. E. Higgins. Mr. Berghorn and Mr. Davis worked out all details for the exhibit with those in charge of the auditorium. From the interest already displayed by the manufacturers, Mr. Berghorn expects all available space in the exhibition hall to be taken.

Plans call for opening of the exhibit on Sunday afternoon to allow the public and early arrivals to see the displays.

The convention meetings will open with a general session program on Monday afternoon. On Tuesday morning the second general session will be held while no program is scheduled for Tuesday afternoon. This afternoon is being left open for all gas men in attendance to have plenty of time to visit the exhibit. The third general session program is scheduled for Wednesday morning, the fourth on Thursday morning and the final session on Friday morning.

The sectional meetings will open on Wednesday afternoon. That afternoon the Natural Gas Production committee and the Natural Gas Utilization and Sales Promotion committee will meet.

The Natural Gas Utilization and Sales Promotion committee will hold a second session on Thursday afternoon and on the same afternoon a meeting of the Natural Gas Transportation committee will be held. The Industrial Gas Conference committee also will hold a meeting on Thursday afternoon.

Special plans for the general session Friday morning will be announced soon.

The members of the three Program committees and the Publicity committee which have been appointed for the convention, are as follows:

Natural Gas Transmission Committee: F. F. Doyle, chairman, Pacific Gas and Electric Co., San Francisco, Calif., and A. L. Forbes, Jr., vice-chairman, El Paso Natural Gas Co., El Paso, Texas.

Committee members: Floyd C. Brown, Natural Gas Pipeline Co. of America, Chicago, Ill.; J. L. Foster, Lone Star Gas Co., Dallas, Texas; Edgar G. Hill, Ford, Bacon & Davis, Inc., New York City, N. Y.; George M. Parker, Mississippi River Fuel Co., St. Louis, Mo.; Fay C. Walters, Panhandle Eastern Pipeline Co., Kansas City, Mo.

Natural Gas Production Committee: B. M. Nowery, chairman, United Gas Public Service Co., Houston, Texas, and W. Jennings Young, vice-chairman, Oklahoma Natural Gas Co., Tulsa, Okla.

Committee members: J. H. Dunn, Lone Star Gas Co., Dallas, Texas; L. A. Farmer,

(Continued on Page 67)

■ "*Porcelain* enamel, Madam, is a mineral substance—not a vegetable compound like paint, lacquer, so-called 'baked' finishes, etc. You could no more buy porcelain enamel in a can than you could buy liquid glass in a can.

"Really—that's what porcelain enamel is: a kind of glass. It is mineral through and through, color pigments and all. And it is fired on its supporting metal in heat as high as 1550 or 1600 degrees F. · · · So hot that while it is being fired the porcelain enamel melts like molten lava.

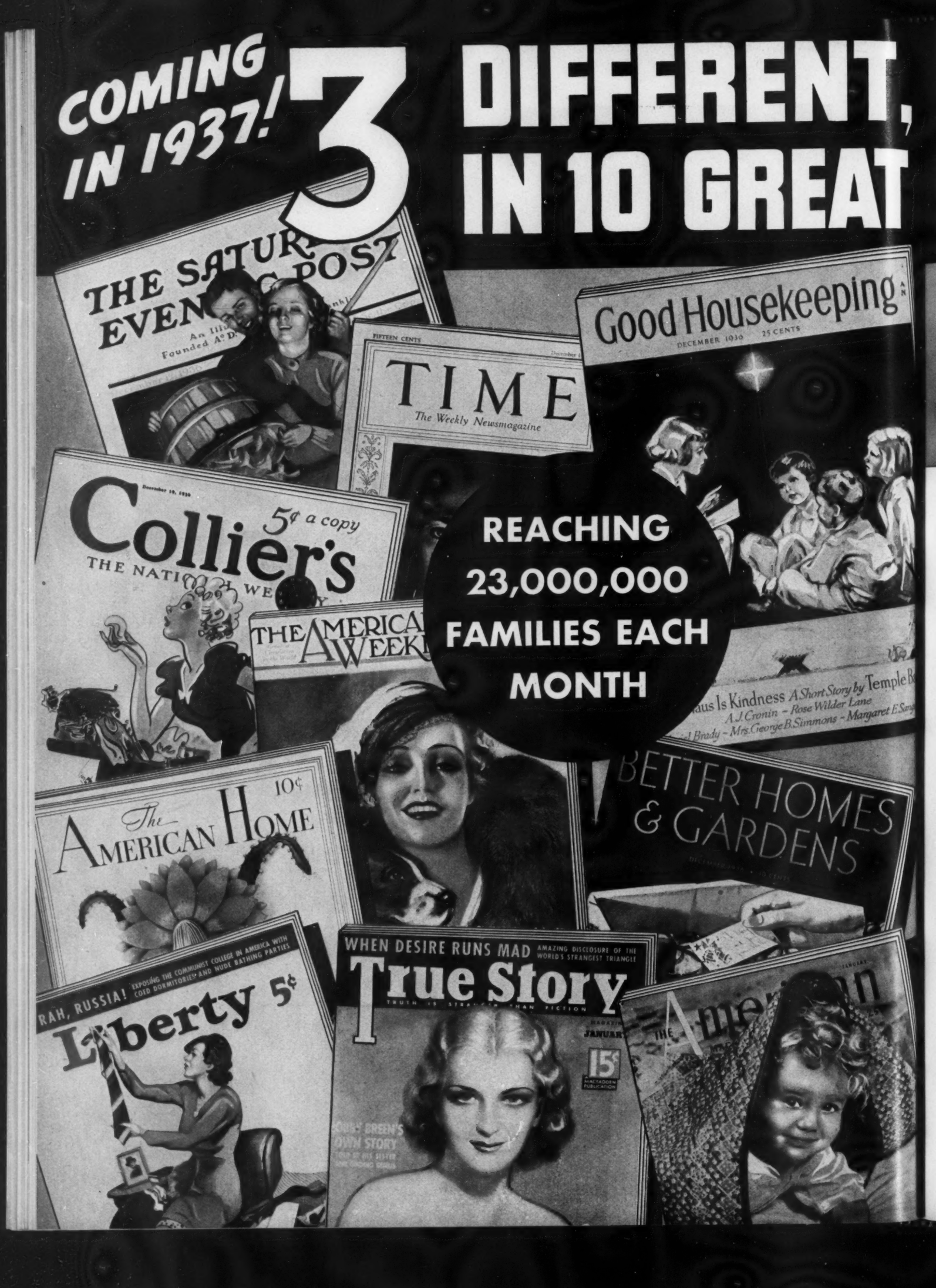
"Because it is mineral, fired in this way, porcelain enamel gives you the hardness and sanitation of glass combined with the strength of steel. Its delicate lustre will never dull; its colors never fade. Ordinary household usage will never scratch or mar it.

"Porcelain enamel is the lifetime finish—the one truly satisfactory finish. That's why we always recommend it."

EDUCATIONAL BUREAU
PORCELAIN ENAMEL INSTITUTE, Inc.
612 North Michigan Avenue
Chicago

DURABILITY PORCELAIN ENAMEL Fused on Metals

PORCELAIN ENAMEL THE Lifetime Finish


COMING IN 1937!
3 DIFFERENT, IN 10 GREAT
THE SATURDAY EVENING POST
Founded A.D.
TIME
The Weekly Newsmagazine
FIFTEEN CENTS
Good Housekeeping
DECEMBER 1936 25 CENTS
Collier's
5¢ a copy
THE NATIONAL WEEKLY
THE AMERICAN WEEKLY
REACHING 23,000,000 FAMILIES EACH MONTH
The AMERICAN HOME
10¢
BETTER HOMES & GARDENS
RAH, RUSSIA! EXPOSING THE COMMUNIST COLLEGE IN AMERICA WITH COED DORMITORIES AND NUDE BATHING PARTIES
Liberty 5¢
WHEN DESIRE RUNS MAD
AMAZING DISCLOSURE OF THE WORLD'S STRANGEST TRIANGLE
True Story
TRUTH IS STRANGER THAN FICTION
JANUARY
15¢
MACFADDEN PUBLICATION
ANNIE GREEN'S OWN STORY
TOLD BY HER SISTER
JANUARY

DRAMATIC CAMPAIGNS IN NATIONAL MAGAZINES

...WILL SEIZE THE ATTENTION OF EVERY TYPE OF REFRIGERATOR PROSPECT IN YOUR COMMUNITY!

Servel Electrolux presents the most spectacular advertising program in gas refrigeration history

THE most intensive, far-reaching advertising program in the annals of gas refrigeration will give you powerful, unmatched support in your sales activity during 1937.

It will be DIFFERENT . . . EXCITING . . . BIGGER THAN EVER.

Ten national magazines—the picked leaders of the country's publications—will tell the story of Servel Electrolux to more than 23,000,000 people a month. And here is the PLUS of this program:

In 1937, Servel Electrolux will present not one, but THREE CAMPAIGNS!

First, there will be a series of dramatic prestige advertisements in the "Saturday Evening Post" and "Time," reaching a total of 3,584,994 readers every issue.

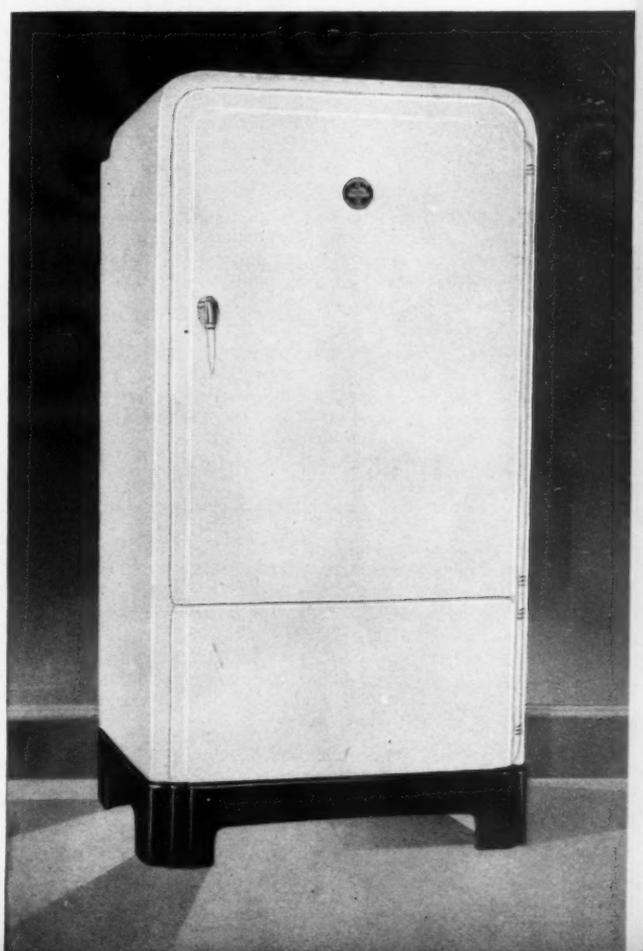
Second, there will be a newsy, informative, and highly pictorial campaign in "Good Housekeeping," "Better Homes and Gardens," "American Home," "American Magazine," "Collier's," "Liberty," and "True Story," reaching a combined circulation of 13,458,679 readers every issue.

Third, there will be a different, truly sensational series of advertisements in the "American Weekly," which enters 6,000,000 homes every issue.

Servel Electrolux will talk to more prospects than ever before . . . will talk to each one in his OWN CHOSEN LANGUAGE.

And HERE'S HOW you can make the most of this 1937 advertising program: (a) get new models on display at once, (b) send out literature with your monthly statements, (c) tie in with Servel Electrolux national advertising through advertisements in your local papers, with outdoor displays, and with advertisements on the backs of your gas bills.

Servel, Inc., Servel Electrolux Sales Division, Evansville, Indiana.



SERVEL ELECTROLUX

THE *Gas* REFRIGERATOR

Lowering-in operation on the United Gas Public Service Company's 24-inch gathering line in the Rodessa field.

United Gas Public Service Co. Puts New $2,500,000 Rodessa Project in Service

By A. D. GREENE

United Gas Public Service Company

EXTENSIVE improvements in the United Gas Public Service Co. system in Louisiana in connection with the development of the Rodessa oil and gas fields were recently completed under the direction of R. H. Hargrove, vice-president in charge of transmission and production. The company, which headquarters in Houston, Texas, expended a total of $2,500,000 on a gathering system, compressor station, gasoline plant, and main discharge pipe line. This development is known as the Rodessa casinghead project.

Construction on this project was commenced in the early spring of 1936. The compressor station and gasoline plant were put into operation in the latter part of October. Due to further development of the oil field, the gathering system is not yet completed.

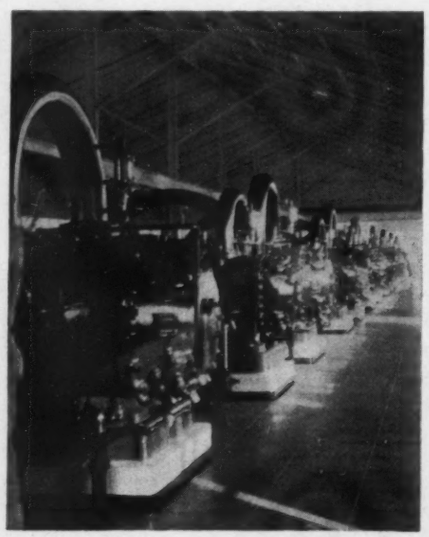
The purpose of this project is to gather the casinghead gas from the company's leases in Louisiana and Texas, transport it through a gathering system to a compressor station, and thence to a gasoline plant for processing. From there the residue gas enters the main transmission system for ultimate delivery to various points of sale.

Gathering System

The casinghead gas gathering system is of the low pressure type, taking gas from the oil-gas separators on the leases at a pressure of approximately 60 pounds, delivering the gas to the suction header of the compressor station at approximately 50 pounds. The main gathering line consists of some 11 miles of 24-inch pipe and 3 miles of 18-inch pipe, all 10-gauge spiral weld. The 24-inch section is victaulic coupled in 40-ft. joints, whereas the 18-inch is Dresser coupled in sections of like length. Connecting the leases to this main gathering line are approximately 18 miles of 4-, 6-, 8-, and 10-inch lateral gathering lines. All lateral line pipe was furnished in double random lengths and is of solid welded construction. Inasmuch as the expected life of this project is of considerable length, and extremely light wall pipe was used, all pipe in the gathering system was coated with coal tar enamel having a 200° melting point.

The capacity of this gathering system has been designed at 60 million cu. ft. per day with a 10-lb. drop across the system.

Excess fluid or "knock-out" as is inevitable in a system carrying a gas of such high gasoline content has been handled in a novel manner. At all low points on the main gathering line a simple barrel knock-out has been installed. The knock-out consists of a drum 48 inches in diameter, approximately 8 feet long, with a 45° baffle in the upper part of the shell against which the gas impinges.



Interior view of the Rodessa compressor station showing the compressor end.

Compressor Station

The compressor station consists of eight 1000 hp. Cooper-Bessemer twin tandem gas engines and compressors. This station is of the two-stage operation type, with an initial suction of 50 pounds ga. and a final discharge of 450 pounds ga. Before entering the suction header, all gas is passed through a gas scrubber, where all free fluid is removed. Between stages the gas is cooled and scrubbed before recompression, and upon final compression is merely cooled, with provision made for free fluid to be knocked out in drips before entering the discharge line to the gasoline plant. Approximately a half gallon of gasoline per thousand feet of gas compressed is extracted at the compressor station.

All main suction and discharge lines are equipped with venturi type plug valves and by-passes operated by remote control from a single control system. Main engine suction and discharge valves are of the plug valve venturi type, giving the special advantage of being able to throttle between stages when encountering varying suction pressures. The gasoline extracted at the compressor station site is pumped through a 3-inch line to the gasoline plant site for delivery to tank cars. The gas at 450 pounds pressure, still containing approximately eight-tenths of a gallon of gasoline per thousand cubic feet, is piped to the gasoline plant through approximately 3½ miles of 18-inch electric weld pipe line. This line was welded into 120-ft. sections, then coupled together with a Dresser coupling.

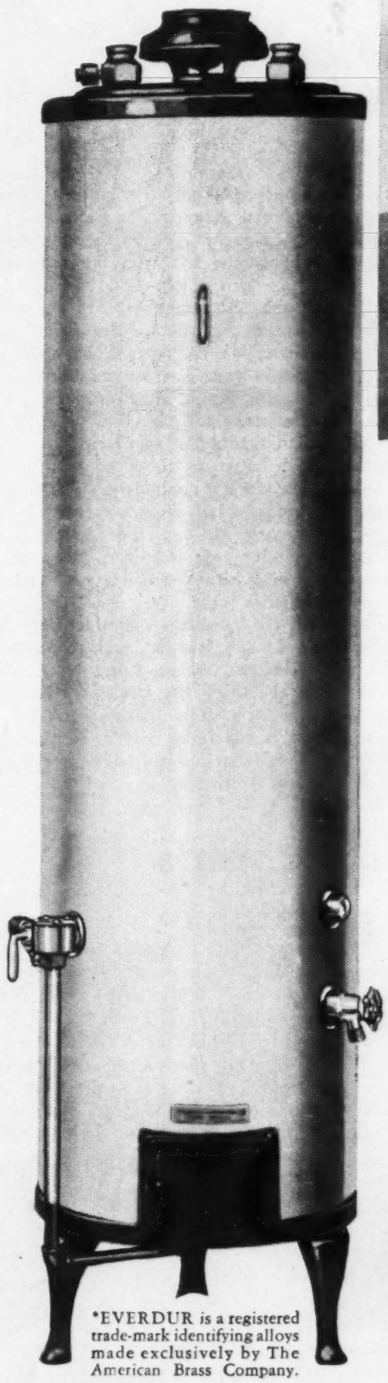
Gasoline Plant

At the Myrtis gasoline plant a new addition, known as No. 3 Unit, was constructed. This new unit increased the capacity of the plant by approximately 60 million cu. ft. of raw gas per day, bringing the total capacity of the plant to approximately 140 million. The additional equipment installed consisted of three absorbers, additional boiler capacity, oil and water circulating pumps, cooling towers, and gasoline storage facilities. All main line valves and by-pass valves are of the venturi plug valve type, remote-controlled from a single control stand operating in such a manner that as a main line valve is closed, the corresponding by-pass valve is jointly opened by the operation of a single control valve. Gas is discharged from the gasoline plant at a maximum pressure of 425 pounds gauge, and has had extracted from it a total of approximately 1.3 gallons of gasoline per thousand cu. ft. of gas.

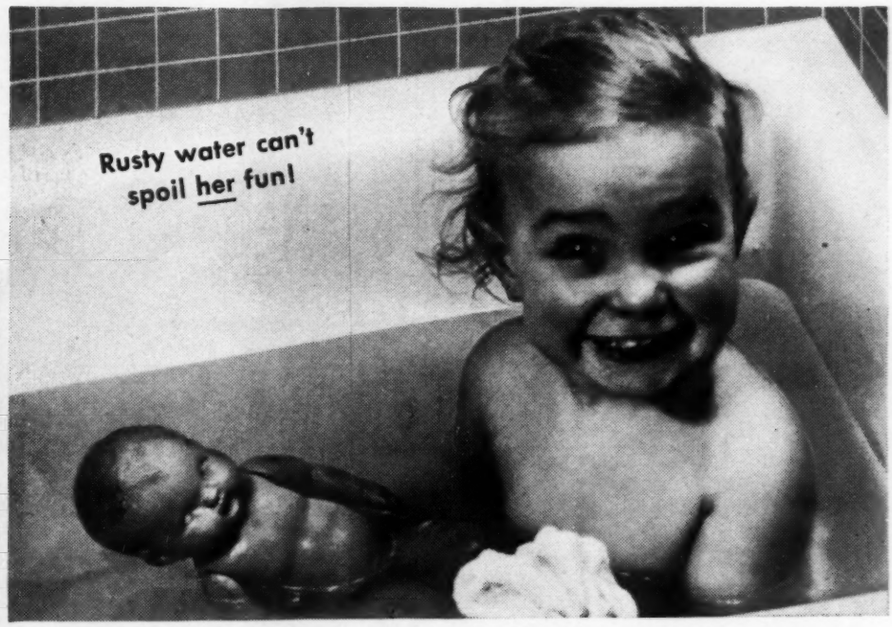
Main Discharge Line

In order to make available the gas processed from the Rodessa Field for markets throughout the system, it was necessary to lay approximately 20 miles of 18-inch line, tying the gasoline plant into the main transmission system operating between the Monroe Field in Louisiana and the Latex compressor station serving main transmission lines in Louisiana and Texas. The pipe used in this line was electric weld pipe, plain end, furnished in double random lengths.

The new Capitol Automatic Water Heater, made by United States Radiator Corp., Detroit, Mich.



*EVERDUR is a registered trade-mark identifying alloys made exclusively by The American Brass Company.



A new make of
Automatic Water Heater
equipped with
Tank of Non-Rust Everdur

IN its new "Capitol" line of gas automatic water heaters, United States Radiator Corporation has chosen rugged Everdur Metal for all non-rust storage tanks. This well-known firm selected EVERDUR because it's as rustless as copper and *as strong as steel.*

Everdur tanks, completely welded with Everdur rod, offer outstanding value. They deliver rust-free hot water year after year, with never a cent for upkeep or repair due to rust.

From the utility's standpoint . . . rust cannot interfere with the performance of an Everdur-tanked heater, and so interrupt gas consumption. Unprofitable service calls are less frequent. Customers are satisfied . . . good-will is increased.

★ Everdur is strengthened copper

27184

Everdur Metal for Tanks

THE AMERICAN BRASS COMPANY · *General Offices:* Waterbury, Conn.

Offices and Agencies in Principal Cities • In Canada: ANACONDA AMERICAN BRASS LTD., New Toronto, Ontario

SALES SLANTS

A month by month presentation of experiences on the sales front.

Selling Kitchen Planning . . . A Job For the Creative Salesman

IF you had a wheat field you would need to harvest it, and you couldn't do it piecemeal. You would need to do it all at one time. You couldn't afford to buy a big combine to harvest your limited acreage. So, you would do what wheat farmers have been doing for years! You would throw-in with your neighbors.

Selling equipment through Kitchen Planning strategy is a job to be done like that. Although a comparatively new idea, Kitchen Planning has become a subject of growing interest to the homemaker. Time was when the housewife thought of her kitchen not as a complete unit, but as a workshop made up of individual units to be purchased and installed piecemeal. One year she would add a modern gas range; the next, perhaps, a gas refrigerator or automatic gas water heater; another year would see the addition of new floor covering, a refinished wall, new curtains or kitchen cabinets.

But her views have changed. The housewife now looks upon the job of remaking her kitchen as a farmer sees his wheat field at harvest time—a job to be done at one time. Women's magazines have shown her the advantage of buying and installing all equipment at the same time according to a definite plan that unifies the kitchen, saving steps and time, and giving her a beautiful as well as an efficient place in which to plan and prepare meals for her family.

This changed attitude of the homemaker, animated by recovery from depression, opens up broad, new vistas to the gas appliance merchant. Instead of one appliance, he can sell all three at once.

But Kitchen Planning presents a unique problem. It is not a job the gas appliance merchant can do singlehanded. Yet the solution is a simple one. Like the wheat farmer, the merchant can "throw-in" with his neighbors.

The Planned Kitchen carries with it scores of related items upon which the merchant can base his appeal to professional and business allies in varied lines to co-operate with him. The architect, the contractor, the cabinet maker, the carpenter, the painter, and the paper-hanger, as well as the lumber dealer, the electrician, and even the dry goods merchant selling drapery material—all these have goods or services to contribute to a Planned Kitchen.

Here's how a Seguin, Texas, plumber-dealer enlists the co-operation of such allies: From a collection of illustrations showing several types and styles of Planned Kitchens (such as many appliance manufacturers have prepared for their dealers), this dealer gets his prospect to pick the type of kitchen she would like to have. She also specifies the color scheme, floor covering design and drapery material desired. These data are then turned over to the architect or contractor who makes blue prints according to exact kitchen measurements which the housewife approves. Under the dealer's supervision, in co-operation with the architect or contractor, the carpenter, the painter, the furniture dealer, the dry goods merchant and others do their part according to the blue print specifications. In this procession, the dealer, of course, enters with the major equipment—gas appliances.

Once established, the allies under such a plan of co-operation will also be on the lookout for Planned Kitchen prospects, turning them over for supervision to the gas appliance merchant who has won the reputation of leading the procession.

By such simple strategy, you, as a gas appliance merchant, build a sales force more effective than you could ever hope to put together within your own organization—at a cost of nothing more than initiative plus intelligent effort.

More than that, homemakers in your community will begin to think of you as the authority on kitchen equipment. The advantage is obvious. Many homemakers will continue to purchase gas appliances by the single piece but, under your influence, according to some program, with the object of having a Planned Kitchen some day.

Most all gas appliance manufacturers now offer their dealers booklets and manuals on Planned Kitchens, which shows by illustration, several styles of kitchens. No two kitchens are alike. The literature offered by manufacturers can serve only to organize the prospects' ideas so that the architect or contractor can make drawings of a specific plan.

Are You the Man who Counts His Sales Before they Hatch?

A SALESMAN kids himself (said a gas appliance salesman of our acquaintance) when he puts too much faith in a prospect's intentions.

I have had many prospects tell me that while they couldn't buy now they would definitely buy next week or next month. A prospect's intentions may be good, but I have learned through experience that if you take all their statements at face value the chances are that you will never get an order.

As a beginner, I was inclined to take people seriously and feel that a promised order would be "in the bag" when the time came around. I have gone so far as to rear back on my heels and boast about the modern gas range, automatic gas water heater or gas refrigerator sales I would have by the "end of the month."

I needn't tell you of the disappointments I experienced. Very few of the promised orders ever panned out. The reasons which a prospect gives for not buying are like a continued story—they go on and on.

Although such failures caused me some discouragement, I had enough enthusiasm for my products that no great harm resulted and I continued trustingly on my way.

The shock that jarred me out of my smugness came when I made a follow up on a "promised order" to find that the prospect had bought a competitive appliance.

Here was a turning point in my career! I realized that if this thing could happen once it could happen many times—enough times, in fact, to defeat my determination to make a living as a salesman.

Why didn't this prospect buy from me? I am certain that she didn't intend to deceive me.

Other salesmen have had to face this same question and those I know who did not find the answer have never gone very far.

The salesman who got the order away from me knew that the prospect couldn't afford to put off buying another day if she was to serve her own best interests. And he managed to get the order by showing her how easy it was to buy from the savings made possible with the new appliance and even by sacrificing other things less important such as picture shows, a vacation, etc.

Simple, isn't it? Yet I had allowed the prospect to kid me as well as herself.

To show a prospect how easy it is to buy now must be as much a part of a salesman's story as the merits of his product.

Again Norge Leads!

NEW CONCENTRATOR GAS RANGE

with New Sales Clincher that closes sales quickly

Prospects can *see* the vital differences in the new 1937 Norge *Concentrator* Gas Ranges... And you can *sell* them on what they see.

In addition to many other advanced features, there is an entirely new type of oven heat control that *cuts gas bills* and prevents the flame from going out when the gas is turned low. A demonstration of the economy and safety advantages of this new heat control is one of the greatest sales clinchers ever offered on a gas range.

The most impressive sales promotion and advertising plan in Norge history backs up the dealer who sells Norge *Concentrator* Gas Ranges. New liberal finance plans make it *easy* to be a Norge dealer, too. Join the Norge Profit Parade now! Write for full details.

NORGE DIVISION Borg-Warner Corporation
606-670 E. Woodbridge St., Detroit, Mich.

NEW BEAUTY ORIGINATED BY NORGE

Following the pace-setting design of Norge Rollator Refrigerators, Norge sets new standards of beauty in gas ranges with these 1937 models... lasting beauty that women will want the minute they see it.

GR-2

See THE DIFFERENCE! Sell THE DIFFERENCE! Pocket THE DIFFERENCE!

ROLLATOR REFRIGERATION (Domestic and Commercial)
GAS AND ELECTRIC RANGES
WASHERS AND IRONERS
WHIRLATOR OIL BURNERS

BE A NORGE DEALER

GAS BURNERS
FINE-AIR FURNACES
COAL STOKERS
AIR CONDITIONING
CIRCULATOR ROOM HEATERS

Industry Outlines 1937 Activities As February Sales Councils Convene

THREE regional gas sales conferences will be held during February from which, if they run true to past records, will come valuable sales helps for the industry in 1937. The conferences are the Eastern Regional Natural Gas Sales Conference, with F. T. Rainey, Ohio Fuel Gas Co., Columbus, Ohio, chairman; the Midwest Regional Gas Sales Conference, with J. F. Jones, Battle Creek Gas Co., Battle Creek, Mich., chairman; and the Southern-Southwestern Sales Conference, with W. E. Leverette, Nashville Gas & Heating Co., Nashville, Tenn., chairman.

F. T. RAINEY

W. E. LEVERETTE

All three are sponsored by the Commercial Section of the American Gas Association, and are annual events. Each conference is set up by a separate sales council made up of prominent sales officials of companies within the area included by the conference. Most of the leading sales executives throughout the nation will attend.

Eastern Meeting

The Eastern Natural Gas Regional Sales Conference will lead off. Sessions will be held on February 4, 5 and 6 in Pittsburgh, Pa. Place: the William Penn Hotel. Chairman Rainey will open the three-day gathering, which is built around the theme: "Capturing 1937 Sales Opportunities for Natural Gas."

Among the topics that will be covered on February 4 and 5 are the following:

Today's Opportunities—The Sales Challenge of 1937.
A New Sales Technique for Promoting Gas Cookery
Re-appraising Gas Refrigeration
Gas Refrigeration Objectives
Our Latest Sales Ally—National Advertising
New Home and Modern Prospects
Possibilities in Air Conditioning
The Growing Field for Unit Heaters
A New Appreciation of the Industrial Load
The Golden Faucet Campaign
Achieving These Objectives

The morning session of the first day has been planned especially to interest executives. The final day, Saturday, has been reserved for the Home Service group, if its members do not wish to meet at the same time that other sessions are held. On Thursday afternoon a national advertising sound film slide will be shown. Two conference luncheons are scheduled.

Four days after the Eastern gas men turn toward home, the Southern-Southwestern Conference will convene in Memphis, Tenn. Conferences will extend through February 10, 11, 12 at the Peabody Hotel. William E. Leverette, chairman, will preside on Wednesday and Friday. L. L. Baxter, vice-chairman, Arkansas Western Gas Co., Fayetteville, Ark., will officiate on Thursday.

A variety of topics will be covered. On the three-day program are such subjects as these:

What the Gas Industry Can Do for the Architect
Tying-in with the National Advertising Program
Application and Trends in Modern House Heating
Promoting Modern Gas Kitchens Co-operatively
Building Desire for Automatic Gas Water Heating
Prospects for Domestic Refrigeration
Experiences and Trends in Summer Air Conditioning with Gas—round table discussion

A skit by "The Mystery Chef" is planned for the afternoon of February 12, and another skit about house-heating sales is due during the afternoon of February 10.

Midwest Conference

The Midwest Regional Gas Sales Conference will convene for the eleventh time on February 18 and 19 in the Palmer House, Chicago. Chairman J. F. Jones will open Thursday morning's session.

Over the remaining sessions will preside B. T. Franck, Grand Rapids Gas Light Co., Grand Rapids, Mich.; F. X. Mettenet, the Peoples Gas Light & Coke Co., Chicago; and F. M. Rosenkrans, Gas Service Co., Kansas City, Mo.

Topics to be covered include:

National Advertising—Today and Tomorrow
The Gas Industry as a Pacemaker
Changes in Today's Business Trends
Prospects in Gas Refrigerator Sales
Employee Sales Training
Home Service and Kitchen Modernization Trends
Competition from Oil and Coal in Space Heating (Alternate topic)

Promotional talks, skits, a water-heating film, and a cooking demonstration by six-year old Barbara Jenkins of Denver, Colo., will be additional highlights. The home service meeting will be held Saturday morning, February 20.

A. G. A. and A. G. A. E. M. Inaugurate "Golden Faucet Contest" This Month

TWO nation-wide campaigns to promote the sale of automatic gas water heaters were announced last month as the American Gas Association and the Association of Gas Appliance and Equipment Manufacturers launched their double "Golden Faucet Contest for 1937." With substantial cash awards and merchandise prizes, the contest will extend from February 1 to September 30, 1937, according to J. W. West, Jr., secretary of the A.G.A. Commercial Section and H. N. Ramsey, chairman of the Gas Water Heater division of the A.G.A.E.M.

The Water Heating committee of the Commercial Section, sponsors of the A.G.A. Golden Faucet Contest, will enlist the support of gas companies and their salesmen for the eight months' drive, while the A.G.A.E.M. Golden Faucet Contest, under the sponsorship of the gas water heater division, will be limited to retail dealer outlets.

Grand cash awards, medals, company plaques of merit, and monthly cash prizes amounting to nearly $18,000 are offered by the A.G.A. contest leaders to winning companies and salesmen in seven divisions, classified acording to the number of meters they serve, and in proportion to the number of salesmen expected to compete. For 8 months' sales records, 65 salesmen will share $3,200. Each month during the contest, 180 salesmen will be awarded ten-dollar cash prizes; with gold, silver, and bronze medals for those who can repeat this performance. At the A.G.A. Convention in 1937, 21 plaques of merit will be presented to companies which led in the contest.

Monthly bulletins will be issued throughout the contest to show the standing of leading companies and salesmen. A tabloid newspaper, mailed to salesmen during the campaign, will present feature stories and pictures about the leaders and their sales methods.

J. W. WEST, JR.

H. N. RAMSEY

Urging local advertising campaigns, the contest committee is offering the Massachusetts Institute of Technology Test Sheets, a series of eight electros for printing advertisements on the backs of monthly gas bills, and a complete four-piece direct mail campaign. All these will be supplied at cost. Individual sponsors will supply contestants with material for newspaper promotion, window displays, and outdoor advertising.

In the A.G.A.E.M. Golden Faucet Contest for retail water heater dealers, $12,000 in merchandise prizes will be offered. Seven districts, comprising the entire United States,

GREATER GAS SALES

WITH THESE NEW RANGES

•

IT COOKS YOUR FOOD!

•

IT HEATS YOUR ROOM!

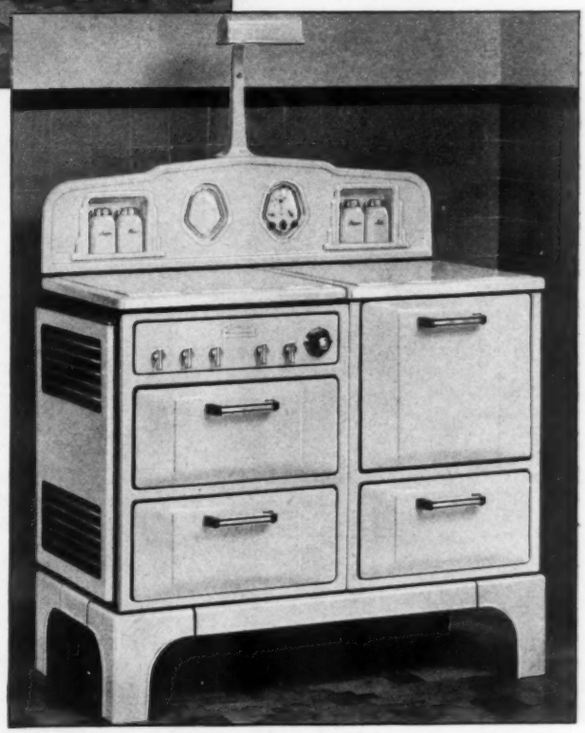
•

IT BURNS YOUR TRASH!

•

AT LEFT... the Wedgewood All-Season Masterpiece 2022-BK-CT Table-Top Kitchen Heater Model

BELOW... Table-Top Model 2045-CT and Open-Top 2085-OT.



•Women will WANT to use more gas when you sell them THESE models!

• You're selling *more gas* when you sell the new Wedgewood ranges with the Built-in Gas Circulating Heater . . . for modern women *want* this newest Wedgewood feature . . . they're already sold on the instant, healthful warmth that floods through the kitchen at the turn of a hand. Important to you—every turn of a hand means more heat in the kitchen.

In the model shown above, users get . . . for the first time . . . a perfected Built-in Gas Circulating Heater, *plus* a full-size incinerator. (Model at right has the circulating heater without the incinerator.) Add to the Gas Circulating Heater the 3 other peerless Wedgewood features: the Extra-Low-Temperature Oven, the Astogril Broiler, the Speed-Plus-Simmer Burners . . . and you have the four great selling points that are making Wedgewood the continued sales leader of the West.

When you sell WEDGEWOOD RANGES to your customers you're making more satisfied gas consumers . . . you're making

friends for GAS!

WEDGEWOOD

The Modern Gas Range
WINS FRIENDS FOR GAS

JAMES GRAHAM MANUFACTURING COMPANY · San Francisco · Los Angeles · Newark · Portland

have been maped out on the basis of uniformity of sales conditions. In each district, ten prizes will be offered. They consist of automobiles, home radios, car radios, washing machines, refrigerators, office furniture, silver sets, watches, guns and traveling bags.

Throughout the campaign, dealers will receive monthly mailings offering advertising and merchandising plans for building their sales. Local tie-ins are urged, with individuals furnishing material for window displays, newspaper and outdoor advertising.

Rules for both contests are simple. Every water heater supplied by a Golden Faucet sponsor will carry a tag, valued at one point for an automatic heater and one-half point for a conversion heater. Salesmen and dealers will be rated according to the number of points earned. In case of ties, duplicate prizes will be awarded.

Nineteen water heater manufacturers affiliated with the A.G.A.E.M. are underwriting the cost of the Golden Faucet Contest in both its divisions.

Gas Service Co. Sales Executives Form 1937 Plans at Kansas City Meeting

NEW sales plans and policies of the new business departments of the Gas Service Co., Kansas City, Mo., were outlined at a general company sales meeting held in Kansas City January 20. Approximately 100 company managers, sales managers and new business department supervisors attended the meeting which was in charge of F. M. Rosenkrans, new business manager of the company.

The meeting was attended by Thomas F. Kennedy, general new business manager of the Cities Service Company, from the New York office. With Mr. Kennedy was J. M. Patten of the New York office new business department. One of the principal speakers at the meeting was Ben C. Adams, general manager of the company.

Company executives are looking forward to a banner year in 1937. In 1936 the company new business departments did a gross business amounting to $2,747,506, an increase of $827,239 in gross sales over 1935. The year 1936 was the third best year in gross appliance sales the departments have enjoyed since the company was organized in 1925, being exceeded only in 1929 and 1930.

Goal of the sales departments this year is to exceed the 1929 gross sales of $4,236,081. It is believed that the new sales plans and the prospects for a good business year in the Kansas City territory will enable the departments to reach the 1929 figure.

Under the new sales plans, term payments on all types of equipment have been put in effect. On some types of equipment where term payments have been in effect the terms have been extended. In 1935 the company sold gas designed furnaces and boilers on 24-months' terms. Terms on this equipment have been lengthened to 36 months. Term payments on space heaters also have been extended from two to three years. Since August, 1935, the company sales departments have been renting large size space heaters. This will be discontinued in 1937. Only space heaters which have been on company lines and returned will be rented.

The company has extended term payments on automatic storage water heaters from 18 months to three years and the rental plan on this type of equipment which has been in effect since March, 1935, is being continued. The three-year term payments on ranges will be continued. Term payments on unit heaters have been increased from 24 to 36 months, and the rental plan on unit heaters will be continued.

In the past few months in a majority of the larger properties the company new business departments have been selling Electrolux gas refrigerators, working through Electrolux dealers in the territory. New plans call for three-year terms on all Electrolux boxes.

The company a few years ago was successful in a group sales plan in offering discounts on more than one appliance sold at the same time. This plan again will be in effect in 1937. The first appliance will be sold at the regular cost, a 10 per cent discount being offered on the second appliance, and 10 and 10 per cent discount on the third and additional appliances.

The February program of the company new business departments, as announced at the meeting, calls for the continuation of the January sale of gas designed furnaces and boilers. Also planned is an introductory sale and showing of the new 1937 model Roper gas ranges. The departments will continue to offer a 10 per cent discount from regular prices on gas designed furnaces and boilers and will not bill the customer for payments on this type of equipment until October 1.

■ ■

B. C. Electric's Sales Plans Outlined in Colorful Book

SALES objectives for 1937 of the British Columbia Electric Railway Co., Ltd., Vancouver, B. C., are set forth in a handsome 44-page book, "Let 's Go Places in 1937," prepared for distribution to company employees directly connected with sales work. W. C. Mainwaring is general sales manager.

Front and back covers of the comprehensive brochure are printed in three colors, and show, against a faintly suggested modernistic city background, a traffic light flashing the green "Go" sign. Illustrations are used profusely. Many are full page and in color. Particularly effective is the page introducing the section devoted to the company's gas department objectives. Reproduced in blue and black is a conventionalized flame with the heading: "GAS, the blue flame of convenience." One display reproduces the company's outdoor and newspaper advertisements.

The introduction contains the statements and pictures of President W. G. Murrin; Vice-Presidents E. H. Adams and. A. T Goward; W. C. Mainwaring, general sales manager; E. E. Walker, light and power sales manager, and James Lightbody, publicity manager.

The company's new business objective for gas is stated as follows: $149,910 of appliances and equipment included in merchandise section; $76,200 of new and retained annual revenue included in merchandise section; $56,200 of appliances by dealers included in dealer section; $22,500 of new and retained annual revenue included in dealer section; and $20,000 of new and retained industrial annual revenue.

In the commercial heating field, efforts will be especially directed toward supplying requirements for small localized heat application. The company will make a drive to replace obsolete cooking and baking equipment, and to sell gas to new industries. It will make a special attempt to sell gas for large volume heating in business blocks to balance the peak of the winter heating load. Sale of gas fuel steam boilers will also be vigorously pushed.

Commercial and industrial gas accounts, the brochure states, turned in 14 per cent of the annual revenue from gas sales during the last fiscal year, yet represent only 1.5 per cent of the monthly accounts rendered. The sales department expects to increase revenue from this source by at least 10 per cent.

Objectives in the Vancouver Island area are presented separately. An especially active year is planned in the gas heating and industrial section.

■ ■

Tennessee Tourist Camp Goes Modern With Gas Appliances

THAT the tourist camp is now going completely modern is evidenced by Berryman's camp one mile south of Memphis, Tenn., where gas furnaces and gas water heaters have been installed in the 13 cottages, five two-story houses, one residence, office building and combined laundry-garage which make up the camp.

Every building is heated with individual blower type Mueller warm-air gas furnaces, according to W. H. McInnis, general sales manager of the Memphis Power & Light Co., which is supplying the fuel.

The water heater in each building is a twenty-gallon automatic. Magic Chef ranges have been installed in each of the five two-story houses and in the residence.

Other standard equipment in each of these up-to-date tourist cottages and houses includes a radio, iceless refrigerator, and ceiling fan. The camp has a water system pump and a water clarifier. Later a water cooling system will be installed.

The camp is laid out in U-shape and all buildings are modernistic in design.

■ ■

Texas Town Grants Franchise To J. W. Moore & Son

A franchise for the sale of natural gas in Goldthwaite, Texas, has been granted by the city council to J. W. Moore & Son. The gas is to be piped from the Brownwood gas field, a distance of about 30 miles and will replace chiefly wood and electricity. The line will probably serve several towns besides Goldthwaite. In Goldthwaite it is expected that about 200 meters will be connected the first year.

Take no chances... use SEAMLESS!

NATIONAL SEAMLESS LINE PIPE

IN the laying of modern pipe lines everything that enters into investment has to be rigidly considered. Initial laying costs, upkeep of the line, and the maintenance of a uniformly good service are vital factors in relation to future profits. Why take chances in the choice of the most important item of the investment — the pipe — when chance can be eliminated? Play safe, install NATIONAL SEAMLESS, the ultimate in pipe reliability.

Pierced from a solid billet of the best quality open hearth steel, NATIONAL SEAMLESS PIPE is without a weld — no long line of possible weakness to fail during installation, or when the going gets rough.

For instance, when crossing ravines and rivers, when going around bends, and whenever pipe is subjected to severe and unusual strains, NATIONAL SEAMLESS offers the greatest reliability obtainable in any pipe today. And there is no chance of leaks developing on account of weaknesses in longitudinal welds, which means full delivery and maximum profits.

Call on NATIONAL engineers to explain the full advantages of "Walls Without Welds," and how SEAMLESS eliminates uncertainty, promises smooth installation, and long uninterrupted service.

NATIONAL TUBE COMPANY

PITTSBURGH, PA.

United States Steel Products Company, New York, *Export Distributors*

UNITED STATES STEEL

Winners in the Peoples Gas Light and Coke Co.'s recent domestic range campaign were the employees at the company's 63rd street store.

Chicago Co. Ends Winter Range Drive

IN the Christmas domestic range sales contest conducted by the Peoples Gas Light and Coke Co., Chicago, Ill., the Sixty-third street store won first place with a total sale of 187 new ranges. The store exceeded the quota set for it by 47 ranges. Prizes were turkeys for every employee of the store.

Fred Gebert is store manager. Members of the winning staff shown in the picture above are: Eleanor Boyle, George Kingswell, Agnes McDonough, Ray Wadman, James Rothenberg, Charles Scannell, Frederick Gebert, William Cheevers, Patrick Crotty, Donald Cotton, Mae Maloney, and William Sugrue.

The Main Sales division of the Peoples Gas Light and Coke Co., headed by William E. Thomas, ran the Sixty-third Street store a close second in the contest, making 106.5 per cent of its quota, with total sales of 426 ranges.

In all, the company sold nearly eleven carloads of ranges during the Christmas domestic range campaign.

■ ■

Salinas Co. In New Location

The Salinas Valley Supply Co., agent for and distributor of butane gas in Soledad, Calif., is now located in its new offices in the Bernhardt building, Soledad. Company owners are Fred Tonini and Andrew Franscioni.

THE WORLD'S MOST COMPLETE
LINE OF SOLENOID VALVES

1505 Broadway, Cleveland, Ohio
267 5th Ave., New York City, N. Y.
1370 Harrison St., San Francisco, Calif.
421 Dwight Building, Kansas City, Mo.

L. A. G. & E. Electric Properties Bought By City of Los Angeles

The $47,000,000 electric system of the Los Angeles Gas & Electric Corp., Los Angeles, Calif., was formally transferred to the city at midnight, January 31, and more than 800 employees of the utility company became city employees. The company retains its gas business, with approximately 385,000 customers, including large industrial firms.

ADDISON B. DAY

Final negotiations included payment of $505,421.25 to the city by the Los Angeles Gas & Electric Corp. for past use of the city streets. Thus was ended litigation between the corporation and the city of Los Angeles, that has been carried on for years.

Addison B. Day, president of the corporation, as midnight struck, completed 42 years of service with the utility company. He began his career as a gas appliance salesman for the company in 1895, and is the oldest active employee in point of service. He has been president since 1928. Prior to that time he was vice-president and general manager for several years.

■ ■

So. Gas and Fuel Completes New Orleans Loop Line

Southern Gas and Fuel Co., operating subsidiary of United Gas Public Service Co., Houston, Texas, has constructed approximately 25 miles of 16-inch loop lines along the Baton Rouge-New Orleans line. The pipe was laid in four separate sections, tying together loops previously constructed, thereby providing looped lines through all swamps. Construction commenced on this project in July and was completed in October. Total cost of this project was approximately $500,000.

The purpose of this increased line was to provide additional pipe line capacity to meet additional demands for gas in and adjacent to the City of New Orleans. This line was constructed by Phoenix Engineering Corp. and the pipe was purchased 50 per cent from The National Tube Co.—Grade "B" Seamless Pipe, and 50 per cent from Youngstown Sheet and Tube Co.—electric weld pipe.

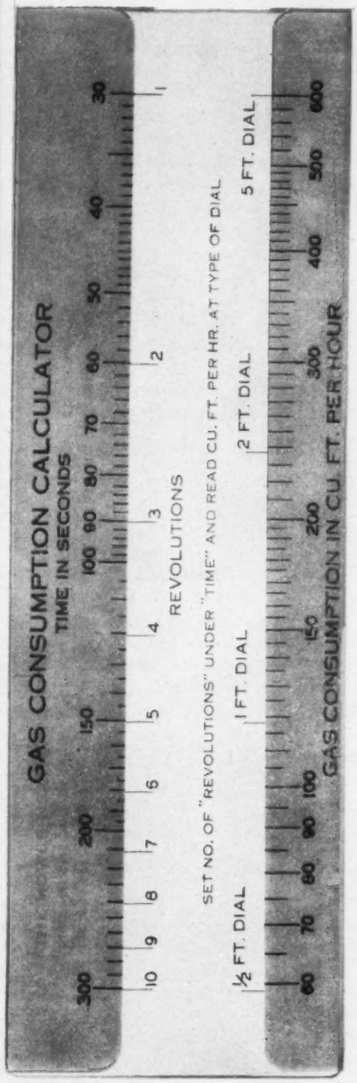
■ ■

Warden Succeeds Bartlett As Okla. Natural Sales Head

THOMAS E. BARTLETT, sales manager of the Oklahoma Natural Gas Corp., Tulsa, has resigned and accepted a position on February 1 with the Interstate Power Co., Dubuque, Iowa, as sales manager of the electric appliance division. The Interstate Power Co. is a subsidiary of the Utility Power & Light Co. of Chicago.

John H. Warden, formerly with Stone & Webster at Brockton, Mass., succeeds Mr. Bartlett as sales manager of the Oklahoma utility company.

FREE! TO HOUSE (GAS) HEATING ENGINEERS


GAS CONSUMPTION CALCULATOR
TIME IN SECONDS
REVOLUTIONS
SET NO. OF "REVOLUTIONS" UNDER "TIME" AND READ CU. FT. PER HR. AT TYPE OF DIAL
½ FT. DIAL
1 FT. DIAL
2 FT. DIAL
5 FT. DIAL
GAS CONSUMPTION IN CU. FT. PER HOUR

Actual Size

THIS CHIMNEY LINING SELECTOR illustrated front and back on each side of this ad is absolutely new and is extremely accurate. A great deal of time and money has been expended upon the development and it is now yours for the asking. It will prove to be an invaluable aid in your work.

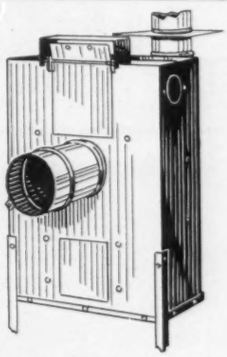
The HOWLE CHIMNEY LINING SELECTOR is a simple slide rule chart which makes it easy for anyone to quickly determine the size of a flue pipe or chimney lining for a gas heating installation. It takes into consideration the variables of gas rate, heating value of gas, BTU allowance per square inch of flue area and gives the answer in square inches of flue area required or the equivalent diameter.

The entire calculation is accomplished by one manipulation. Its working range is from 100 to 1000 cu. ft. per hour for the gas rate, 500 to 1200 BTU per cu. ft. heating value and 5000 to 12,000 BTU per square inch of flue area allowed.

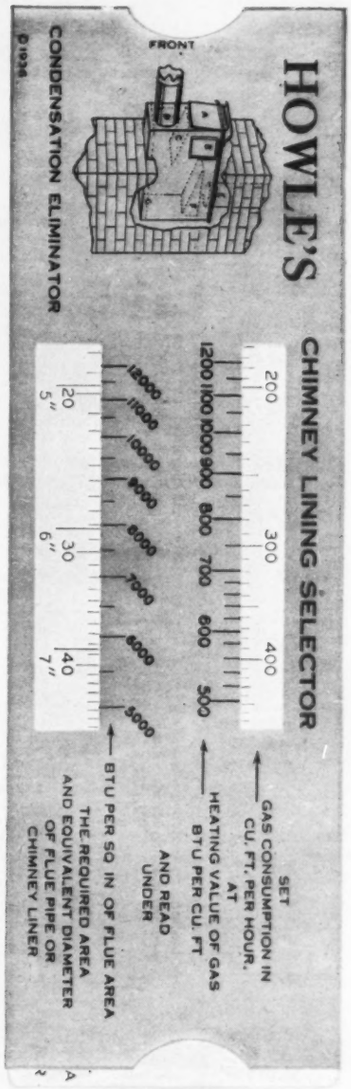
On the back of this device is a convenient arrangement for quickly calculating the amount of gas passing through the meter. You simply time the dial for a given number of revolutions and use this device to immediately determine the gas rate per hour through the meter. This is also done in a single manipulation.

Additional slide rule charts may be had for fifty cents ($0.50) each.

Condensation Is No Longer a Problem



The latest development in the control of condensation in house heating is THE HOWLE HEAT EXTRACTOR. This unit is installed in the basement between the heating plant and the chimney. It controls the condensation by reevaporation and the large heating surface radiates into the basement heat that is otherwise lost up the chimney. The automatic draft control maintains a balanced draft at all times. Draft hoods are eliminated. The modern gas heating plant is not complete without THE HOWLE HEAT EXTRACTOR.


FRONT
HOWLE'S
CONDENSATION ELIMINATOR
CHIMNEY LINING SELECTOR
SET GAS CONSUMPTION IN CU. FT. PER HOUR. AT HEATING VALUE OF GAS BTU PER CU. FT AND READ UNDER
BTU PER SQ IN OF FLUE AREA
THE REQUIRED AREA AND EQUIVALENT DIAMETER OF FLUE PIPE OR CHIMNEY LINER

Actual Size

VITROLINER
the permanent Chimney Liner

VITROLINER—The PERMANENT Chimney Liner is made of high quality, heavy gauge enameling stock iron covered with acid resisting vitreous enamel. The new bell and spigot type joint insures a perfect fit of all parts and greatly facilitates the ease of installation. The various lengths in which VITROLINER is manufactured, 6 inch—12 inch —24 inch, enables you to line the majority of off-set chimneys without breaking in.

CONDENSATION ENGINEERING CORPORATION

TELEPHONE MONROE 1031

335 South Western Avenue, Chicago

Please send me Free of Charge One Howle Chimney Lining Selector.

NAME .....

TITLE .....

COMPANY .....

ADDRESS .....

CITY ..... STATE .....

Pacific Coast Peak Load Records Fall During Unusual Weather

OPERATING at capacity because of the demand created during nearly two months of sustained freezing temperatures, the gas systems of the serving companies in the Southern California area distributed over 10 billion cu. ft. of natural and artificial gas in the first 23 days of January, 1937. Estimates indicate that the gas consumption for the month of January will approach 14 billion cu. ft., as compared with 11 billion cu. ft. distributed during January of last year.

The major portion of the gas used in the Los Angeles basin, which takes in everything south of the Santa Monica mountains including the territory served by the three Los Angeles companies, the Los Angeles Gas & Electric Corp., the Southern California Gas Co., and the Southern Counties Gas Co., the city of Long Beach, and the system of the San Diego Consolidated Gas and Electric Co., was natural gas, 7400 million cu. ft. being received from the Northern fields and 2600 million coming from fields in the Los Angeles basin during the 23-day period.

On certain of the coldest days stand-by gas manufacturing plants with a capacity of 138,000,000 cu. ft. daily, were brought into operation to create a reserve for the peak hours and to forestall any possible shortage from natural gas line failures.

Gas consumption during December, in the last half of which the protracted cold spell began, totaled 11,637,000,000 cu. ft.

Beginning on December 30, 1936, the first of the extremely cold days, the gas companies in Southern California experienced a series of peak demand days, culminating in an extreme all-time peak demand on January 22, when the actual send-out to domestic, commercial and industrial consumers was 495,935,000 cu. ft. During these peak days it was necessary to curtail industrial use among consumers on a low surplus rate subject to shut-off, and the potential gas demand in the Los Angeles basin district for a peak 24-hour period on January 22 was 636,000,000 cu. ft.

The estimated gross send-out for the month becomes more significant when the curtailment of the industrial supply is considered. The exact split between the two types of services throughout Southern California cannot be computed, but accurate returns from the system of the Los Angeles Gas and Electric Corp. indicate an increase in the domestic and commercial load of over 75 per cent as compared with the same period in 1936.

The Los Angeles Gas and Electric Corp., largest of the distributing companies, with 90 per cent essential domestic and commercial service to 385,753 consumers, distributed 190,530,000 cu. ft. on January 22, the greatest send-out in the history of that company. On the following day between 9 and 10 o'clock in the morning the corporation recorded the greatest demand for any single hour in its history, 12,344,000 cu. ft. of gas passing through meters at the central stations during that hour.

With the exception of one pipe line failure caused by extreme contraction of an exposed section of transmission main serving a few thousand consumers, the gas facilities of the transportation and distributing companies serving gas to the southern part of the state met the unprecedented demand without difficulty. Although the amount of gas manufactured was small in comparison with the total send-out, operation of stand-by gas manufacturing units proved their worth in an emergency as well as demonstrating that artificial gas made from diesel oil is so close to natural gas in heating value, that it can be turned into the natural gas system without adjustment.

In the San Francisco bay region the sustained cold period brought increasingly heavy gas consumption, and the Pacific Gas and Electric Co. sent out 1,454,000,000 cu. ft. of gas during the week ending January 9 in the territory supplied by natural gas, smashing every previous record of the company.

According to R. S. Fuller, distribution engineer of the company, this was at least 20 per cent greater output than any previous week in the company's history.

Distribution pressures remained good, even with transmission lines working practically to capacity to supply the unprecedented demand created by sustained abnormally low temperatures.

■ ■

United Gas Officials Make Sales Tour of Properties

During January a group of United Gas System officials, headed by N. C. McGowen, president of the United Gas Public Service Co., Houston, Texas, made the annual sales tour throughout the system's teritory. Other officials making the tour included R. H. Hargrove and J. V. Strange, vice-presidents of the Houston utility; J. S. Ivy, chief geologist and general superintendent; B. M. Nowery, general superintendent of production; M. A. Abernathy, superintendent of transmission; D. F. Strickland, new business manager; and H. E. Randall, industrial engineer.

Stops were made at New Iberia, La.; Laurel, Miss.; and at Beaumont, Vernon, Seguin, and Houston, Texas.

■ ■

Edcouch, Texas, Will Use Gas From Rio Grande Valley Well

A municipal natural gas system for Edcouch, Texas, was carried in a $25,000 revenue bond vote recently. Gas will be supplied from the Union Sulphur Co.'s No. 3 American Rio Grande Land and Irrigation Co. well near Mercedes.

The Edcouch system, it is reported, will be the first municipal gas system installed in the Rio Grande Valley using Valley natural gas.

Use Either Gas or Gasoline For Fuel

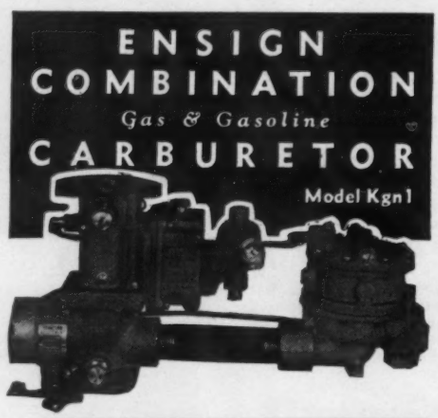
. . . Get the Most Out of Both

. . . with the

The Ensign Combination Carburetor combines scientifically engineered carburetion of both gas and gasoline in one efficient, compact unit adapted to all types of multi-cylinder stationary engines.

This carburetor's fine precision fuel regulation and control assures a new high in efficiency and a new low in fuel consumption from your power unit. Change from one fuel to the other can readily be made.

For complete description write for Bulletin 84.



Butane Equipment; Gasoline Carburetors For Industrial Engines and Tractors

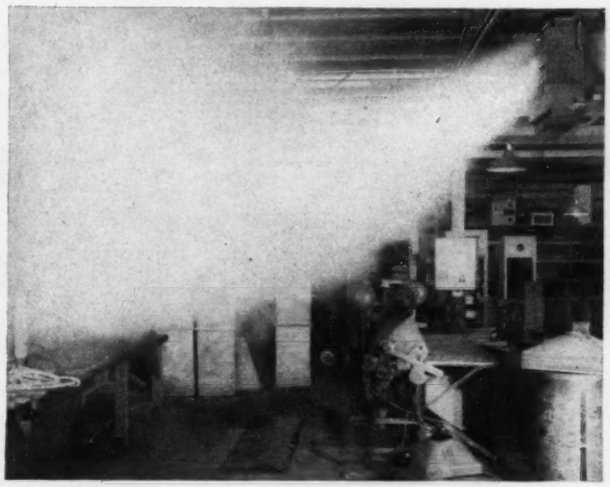
ENSIGN CARBURETOR COMPANY, LTD.
Huntington Park, California

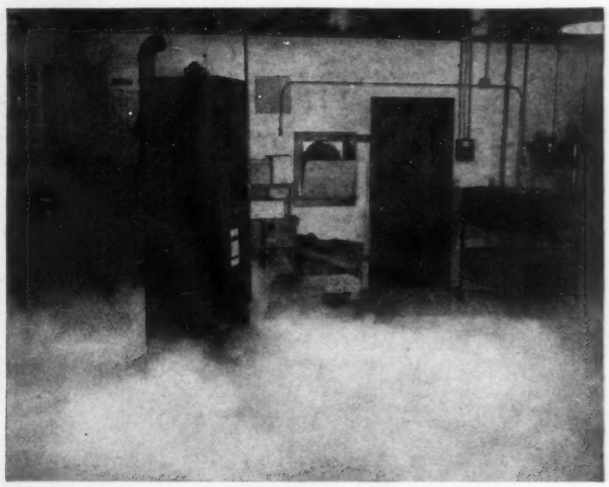
Chicago Branch: 2644 So. Michigan Avenue. Distributors with Stocks: A. W. Schuller, Inc., Tulsa, Okla.; The Binkley Co., Oklahoma City, Okla.; Portable Rig Co., Houston, Texas; H. G. Makelim, Oakland, Calif.; T-V Supply Company, Wichita, Kansas.

New Payne Factory Unit

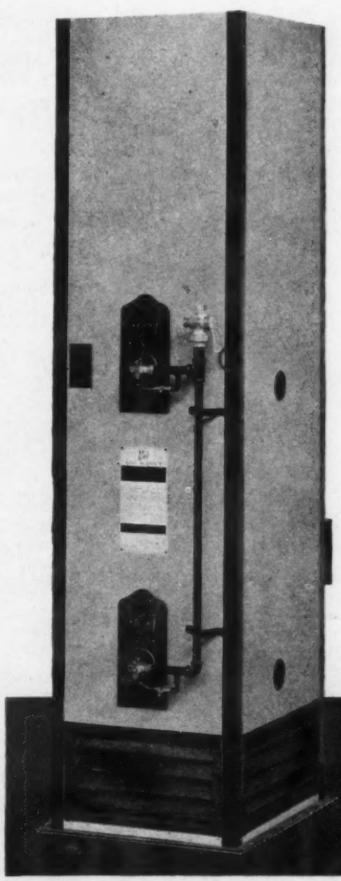
Speeds Production

THROUGH MORE EFFICIENT HEATING RESULTS





Photographs of actual tests made with smoke bombs show marked efficiency of Payne Factory Unit in warm air distribution. Left—Ordinary type overhead unit, which does not warm floor area, and, Right—showing warm air travel from Payne Factory Unit over floor area where it is needed.



★ Adding to the already complete line of gas-fired heating appliances, Payne now offers a Unit employing a new principle which is destined to revolutionize industrial heating practise.

Safeguards the Health of Workers

The Payne Factory Unit distributes comfortable, circulated warmth where it is needed, in the area from the floor to a point sufficiently above the breathing level of workers to provide an ideal working condition. Sickness among employees in Payneheated plants is greatly reduced.

Effects Economy in Heating Cost

The Payne Factory Unit expels warmed air through louvres at the floor level and distributes it evenly from all four sides to a distance of approximately twenty feet. As this air rises it is drawn back by the fan in the top of the heater and recirculated, creating an ideal circulation of warm air. Stratification of unused heat in the high roof or ceiling areas is eliminated. There is no heat loss through large window areas in the roof.

Compact and Easily Installed

The Payne Unit is very compact, actually requiring a space 24″x26″ in area. It can be quickly and easily installed by merely connecting to gas line and convenient outlet for fan. This unit is light in weight and can be moved readily.

Finished in sapphire blue and black krinkle enamel, the unit is very attractive. Manual control is standard, but automatic control may be added if desired.

Write for further information or telephone WOodbury 63181.

PAYNE FURNACE & SUPPLY CO.

336 No. Foothill Road • Beverly Hills, Calif.

For Safety—Durability, Economy

The Outstanding Gas Pressure REGULATOR is a

BARBER

Made in ¼", ⅜", ½", ¾", 1", 1¼", 1½" and 2" sizes.

In a precision device such as a Gas Pressure Regulator—where accuracy of operation is all-important—there simply is no substitute for the BEST. Barber Regulators have A. G. A. Approval, complying with strict requirements as to pressure drop. Beautifully compact design, all-bronze bodies, the finest in workmanship and assembly. Gas-tested and rigidly inspected. Don't overlook the big field for the sale of Regulators with numerous gas appliances. Write for literature and prices on Barber Burners and Regulators.

The Barber Gas Burner Co.

3704 Superior Avenue

CLEVELAND - - - - - - - - - - OHIO

The Barber Gas Burner Co. of Michigan
4475 Cass Avenue, Detroit, Michigan

Not too soon

TO PLAN TO BUILD 1937 HEATING SEASON LOAD WITH THE POPULAR

WARD FLOOR FURNACE

Write us for catalog, price list and complete facts about the load building possibilities of this permanent equipment.

WARD HEATER CO., LTD.
1800 W. WASHINGTON BLVD.
LOS ANGELES • CALIFORNIA

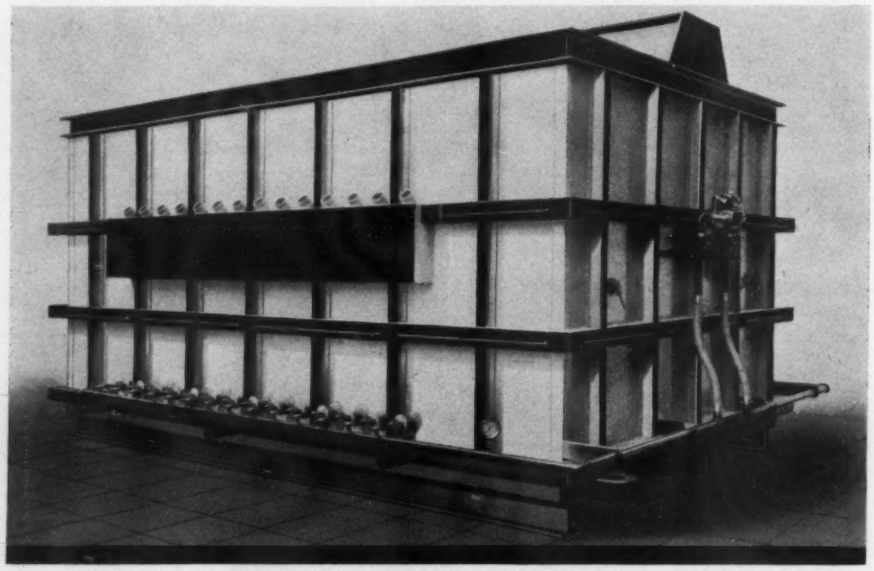


FIG. 2. New design of vertical hot tube annealer.

Vertical Hot Tube Annealers

(Continued from Page 26)

the core busters to take out the maximum amount of heat from the waste gases in the upper portion of the tube results in from 20 to 25 per cent greater production. Conversely, a similar amount of fuel is saved. An actual test of two identical annealers on the same work in the same mill, one without the core busters and one with, showed a fuel consumption of 1170 cubic feet of gas per net ton of steel for the old type and only 910 cubic feet for the new.

Granulated and stuck corners, sometimes acquired when heating short charges, are entirely eliminated by the use of the individually fired vertical hot tubes because it is possible to shut off the end tubes and the corner heat. During cooling the charge is protected from the atmosphere by a corrugated steel inner cover so that the outer can be used on another charge. In this way the maximum production is obtained with the least number of covers.

Another recent development is the use of a throttling temperature control, which proportions the volume of fuel to the actual temperature requirements of the furnace, and makes it possible to obtain, when using vertical hot tubes, the maximum efficiency from this type of annealer. As the furnace comes up to the desired temperature, the throttling control reduces slightly the volume of fuel being burned. This, in turn, reduces the temperature of the tube an equal amount top, middle and bottom, the bottom still remaining considerably hotter than the top so as to continue pushing the bottom of the charge. By the use of the throttling control, in conjunction with vertical hot tubes, it is possible to obtain automatically the desired temperature gradient between the bottom and the top of the charge, regardless of charge height or length of cycle.

While practice at different mills varies somewhat, one company using a number of these annealers, makes up charges of sheets ranging from 35,000 to 45,000 pounds each and from 30 to 96 inches in dimension. Each charge is heated to 1300° F., which requires about 12 hours, and then the cover is removed and set on the next base and charge. Gas consumption runs between 1000 and 1100 cubic feet per ton without the core busters. Deep drawing stock for automobile fenders, radiator shells, cowls, etc., require slow cooling. The above practice is varied in other plants by using an inner cover. In this case the charge is heated to 1300° F., in the usual 12 hours, after which the burners are turned off and it is allowed to soak for 6 hours longer. At the end of this period the cover is removed, but the inner cover is left in place to protect the charge from the atmosphere until the temperature has been reduced to 300° F.

The one advantage the obsolete bell-type electric furnace has claimed over the vertical hot tube annealer was simplicity of design and ease of starting. The newly designed vertical hot tube annealer as shown in Fig. 2 is simplicity itself. The lighting up of this furnace is now accomplished by touching a button.

■ ■

Texas Cities Names J. L. White As El Paso Plant Supervisor

John L. White, who has been sales supervisor of the Denison division of Texas Cities Gas Co. and Community Natural Gas Co., is the new sales supervisor of the El Paso plant of Texas Cities. The appointment was effective January 1.

Leon M. Scholl, new division superintendent of Corsicana division of Community Natural Gas Co., was welcomed to his post by division employees with a buffet dinner, reception, and dance on January 8.

Harold P. Mueller (center) drops in on a couple of welders.

THE SECRET OF A GOOD NAME

IT TAKES a lifetime to build a good reputation, yet it can be lost in one deliberate misdeed. My father drilled that precept into me from the time I was a little shaver in knee pants.

"Whether the name applies to a man or a manufacturer matters little," he said. "The trade and the public are quick to discern true quality in either. Build a good name—and guard it well!"

I've never forgotten that. Father made the name of this company a *good* name wherever heating equipment is known, and I've made it my job to carry on. Our customers can sell Mueller equipment with confidence, and build an enduring volume of customer good-will.

So, if sometimes you think we're a little fussy about details here at the Mueller plant, you can lay the blame right on my doorstep—and I'll like it! For I'm not going to let anything go out of this shop that might reflect on the good name my father built, and that I'm trying to maintain.

Frankly, I think our present line of heating and air conditioning equipment more than upholds our reputation for well-styled products of quality. In appearance and performance it meets modern demands.

The Mueller Gas Era line of furnaces and boilers still enjoys an enviable reputation for quality. They are the kind of products of which you can be proud.

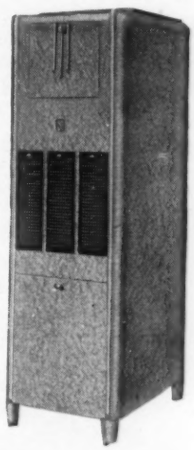
Write today for Mueller catalog. G-1.

L. J. MUELLER FURNACE CO.
Milwaukee, Wis.

H. P. Mueller

MUELLER-MILWAUKEE

MUELLERAIRE UNIT HEATER



Here is a unit that finds ready sale to stores, shops, show-rooms, small factories and such commercial applications where the unit is to be installed within the space to be heated.

The Muelleraire heats, filters and humidifies the air and distributes it by forced circulation. Heat transfer units are Gas Era pressed steel sections. Readily installed. Simply connect gas, water, electricity and vent, and attach cowl or duct.

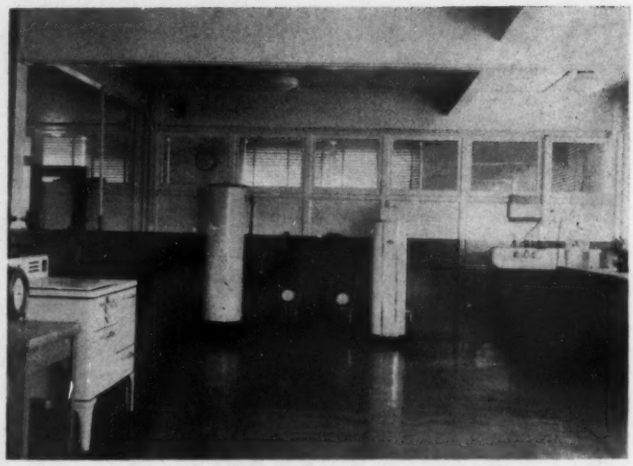
Gas for WOOD! with
GLO-FIRE
APPROVED ODORLESS GAS LOG

Odorless
Realistic
Economical
Circulating Heater
A.G.A. Approved

Slotted venturi type burner and new double combustion principle make Glo-Fire the perfect heater for the fireplace.

WRITE TODAY FOR DETAILS
EXCLUSIVE DISTRIBUTORS
COLONIAL SHOPS
Glo-Fire Sales Division
3350 W. FIRST ST. LOS ANGELES, CAL.

INTERIOR VIEW of the recently enlarged appliance testing laboratory developed by the Los Angeles companies.



A CORNER of the laboratory, showing a stove, a gas water heater, and an electric water heater hooked up for testing.

In Los Angeles
it's the
HOTEL
CLARK
Fifth and Hill

555
Rooms-Baths

from $2.50 PER DAY

Famous for Good Food from Coast to Coast

RIGHT downtown in the center of things. Easy chairs, sleep-inspiring beds, large rooms with luxurious fittings.

P. G. B. MORRISS
Manager

Los Angeles Companies Develop Large Appliance Testing Laboratory

TO boost the sale of appliances, the Los Angeles Gas & Electric Corp., Los Angeles, Calif., has during the past year developed an appliance testing laboratory at its gas works at Center and Aliso streets. The laboratory now has the additional support of the Southern California Gas Co. and the Southern Counties Gas Co., and thus has assumed an intercompany status. Guy Corfield, research engineer of the Los Angeles Gas & Electric Corp., is in charge of the testing laboratory.

GUY CORFIELD

Starting in a small way, the laboratory has expanded to occupy a floor space of 3000 square feet, exclusive of office facilities, and contains complete apparatus for all types of testing. A fully equipped test kitchen is also maintained for conducting precise measurements of gas consumption, temperatures, and other controlling factors. The kitchen is to be used also as a closed room for combustion and temperature distribution tests on space heaters, and as an elevated temperature room for checking the performance of refrigerators in hot weather.

The staff examines existing appliances and new models as they appear, as well as competitive equipment to indicate sales arguments. Suggestions for improvements in gas appliance design are passed on to the manufacturers, who are welcome to use the facilities of the laboratory in working out new ideas.

The laboratory personnel includes not only test engineers, but several experienced customer service men, familiar with the practical side of appliance operation and situations that arise on the customer's premises.

The home service department personnel will carry out most of the cookery testing work. The staff expects to make investigations and recommendations on difficult complaints received from housewives, stage demonstrations for small groups of employees or customers, and conduct research on certain new developments such as broiling, oven canning, and low temperature cookery.

WE'RE OUT TO HELP YOU WIN THE

BATTLE FOR BUSINESS

3 WINNING SALES-PUNCHES THAT PACK A WALLOP FOR 1937 SALES

1

ADVERTISING

AGP plans the biggest advertising and promotion campaign of recent years. It includes big-space newspaper advertising...a heavy, steady schedule in wide-coverage home magazines...a complete portfolio of real sales producing literature...complete co-operation in getting more business and building bigger loads for you.

2

A COMPLETE LINE

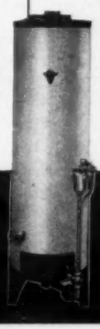
of Gas-fired Equipment for Heating, Air Conditioning, Hot Water. New conversion burners . . . new boilers for steam and hot water in the famous "Empire" Ideal line ...new complete Air Conditioning Units...Automatic storage Water Heaters in every size and price range.

3

A WINNER FOR THE GOLDEN FAUCET CONTEST

Thousands of dollars in prize money every month go to Dealers and Utility Salesmen in this new sales contest for 1937.

AGP automatic, gas-fired storage Water Heaters will put you in the money—they're easy to sell and they stay sold.



AGP

Write today for details of AGP backing that will help you win your fight for 1937 sales.

AMERICAN GAS PRODUCTS CORPORATION

DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

40 WEST 40TH STREET · NEW YORK, N.Y.

Specified for Safety and Dependability

Highly efficient combination Back Pressure Valve with Auto Vent, weight or spring loaded. Designed to relieve accumulated pressure in case of reverse flow due to air at higher than gas pressure. Preferred by Safety Engineers.

New Bulletin on request

Connelly

Iron Sponge & Governor Co.

Chicago, Ill. Elizabeth, N.J.

SALE OF PIPE LINE EQUIPMENT

Latest Type Pipe Line Equipment, sufficient for two complete spreads. Purchased new and used less than THREE months. Consisting of

2 Buckeye Trenchers, Model 48, with lighting plants and spare parts.

2 Buckeye Backfillers, Model D, with spare parts.

5 Diesel Cats R.D. 6 & 7's with Cardwell booms and lights.

Also—Motor Trucks, Pumps, Wagons, Paint Equipment, Air Tools, Welding Supplies, Tripods, Winches, Hand Tools, Etc., Etc.

Bulk Bids Favored — All Equipment under cover. Write for full particulars and location.

◆

UNION EQUIPMENT CO., Inc.

Phone—Redford 2200—P.O. Box 67, Redford Sta.

28424 Grand River Ave., Detroit, Mich.

Silex Co. Announces Low Cost Two-Unit Gas Coffee Maker

THE Silex Co., Hartford, Conn., has just announced a two-unit gas model, The Sinton, for $15.95 complete with 8-cup glassware. The Sinton is also produced in a three-unit size. Designed for the smaller user this glass coffee maker is made of Pyrex brand glass, guaranteed against heat breakage.

This model is designed to give efficiency and long-life at low cost. The range is made of chrome-plated steel. The top and burner grids are cast in one piece, with baked porcelain enamel, black finish. Combination high and low heat burner permits both brewing and warm storage over the same port. The combination burner may be had on one or more ports, with low burners for the other units, to suit the brewing requirements of the user.

■ ■

Michigan Gas Corp to Build Line to Greenville

The Gas Corp. of Michigan, Ludington, Mich., has received permission from the Michigan Public Utilities Commission to construct a gas pipe line from Winfield Township, Montcalm County, to Greenville, Mich. The distance is about 15 miles.

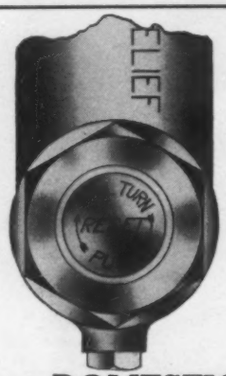
The Gas Corp. filed its request with the Commission about a year ago, immediately after an 8,000,000-foot flow of gas was discovered in No. 1 Thompson, Knapp, a wildcat well. Construction work is expected to start soon.

■ ■

Moundridge, Kan., to Build Municipal Gas Station

Bids were to be opened on January 26 for construction of a municipal gas distribution system in Moundridge, Kan., after a proposed bond issue of $35,000 for the purpose was carried at the polls on December 28. Construction will probably be completed within two months.

The city has contracted with the Drillers Gas Co. for gas. The company also supplies Halstead, Burrton, and Hesston. Population of Moundridge is 870.



Pull... Turn... Push...

. . . the knob and this new temperature relief valve is ready to operate again. No parts of any kind to replace!

Install it ahead of the thermostat and it prevents over-heating by shutting off the gas supply when the danger point is approached. Gas men and water heater manufacturers are invited to write for particulars.

DOMESTIC MANUFACTURING COMPANY

700 East Florence Ave. Los Angeles, Calif.

The Goodman Stopper

The Reliable Shut-off for Street Mains

Equipped with Improved Patented Locking Sleeve, which locks both handles to the pipe. Stopper cannot slip. Gas cannot pass.

Safety Gas Main Stopper Co.

523 Atlantic Avenue, Brooklyn, N. Y.

Pac. Coast Rep.: C. B. Babcock Co.
135 Bluxome Street
San Francisco, California

BUTANE-PROPANE NEWS

C. L. Kerr, Pioneer in Bottled Gas Operations, Dies

CHESTER L. KERR, president of the Rockgas Products Co., Pittsburgh, Pa., and treasurer of the Imperial Gas Co., Los Angeles, Calif., died suddenly of a heart attack in Los Angeles on January 24. Mr. Kerr was 65 years of age.

In 1909 Mr. Kerr with a group of associates formed the Riverside Oil Co. in Pittsburgh which was one of the first companies to enter the casinghead gasoline business. In 1911 he participated in the founding of the American Gasol Co., Pittsburgh, which pioneered the liquefied petroleum gas field.

Prior to his activities in the bottled gas industry, Mr. Kerr was an attorney and oil man. He was born in Titusville, Pa. For the past five years he had lived in Southern California.

■ ■

Compressed Gas Men Hold Annual Meeting in N. Y.

The Compressed Gas Manufacturers' Association held its annual meeting January 18-19 at the Waldorf-Astoria Hotel in New York City. New officers were elected as follows:

President, E. A. Faulhaber, of Compressed Industrial Gases, Inc., Chicago, Ill.; first vice-president, W. N. Cochran, of Crystal Carbonic Laboratory, Atlanta, Ga.; second vice-president, J. J. Crowe, of Air Reduction Co., New York, N. Y.; secretary-treasurer, Franklin R. Fetherston, New York, N. Y.

■ ■

Butane Used in Texas Hotel And Court House

A butane gas plant has been installed in the Balentine Hotel, Rocksprings, Texas, to provide both heat and fuel. It is said to be the first large private butane installation in the community. Forrest Weldon of Rocksprings sold the plant and supervised installation. It is a 565-gal. plant. The output is 3300 B.t.u.

A 500-gal. tank has been installed in the Edwards county court house and in the jail. Tanks of similar size are being installed on a number of ranches near Rocksprings.

■ ■

K. C. Jones to Manage Butane Plant in Blythe, Calif.

Southwest Gas Corp., which will soon supply Blythe, Calif., with a butane gas service, has appointed K. C. Jones manager of the plant to be erected in Blythe. Mr. Jones has been in charge of the Victorville office of the Southwest utility company under the management of John Koeneman.

The plant and distribution system is to cost approximately $30,000, and will include a 4,000-gallon welded steel storage tank.

Sixth Annual N.B.G.A. Meeting Held in New York City

By RALPH HEFFERLINE

Staff Correspondent

WALTER VERKAMP, of Verkamp Corp., Cincinnati, Ohio, was elected president of the National Bottled Gas Association at its sixth annual meeting held January 20 at the Waldorf-Astoria Hotel in New York City. He succeeds H. Emerson Thomas, of the Philgas Department of Phillips Petroleum Co., who had held the office for the past two years.

WALTER VERKAMP

Frank C. Boice, of Shell Petroleum Co., St. Louis, Mo., was elected first vice-president, and A. N. Kerr, of Imperial Gas Co., Los Angeles, Calif., was named second vice-president. Franklin R. Fetherston, New York, N. Y., was re-elected secretary-treasurer of the organization.

The following were voted directors of the association for 1937:

Mark Anton, Suburban Gas Co., Verona, N. J.; Paul H. Zook, Sloan & Zook, Kane, Pa.; Fred Warner, Jr., Superfuel Co., Tampa, Fla.; J. E. Balsley, Standard Oil Co. of California, San Francisco, Calif.; Walter Verkamp, Verkamp Corp., Cincinnati, Ohio; Harry Strickler, Protane Corp., Erie, Pa.; Frank C. Boise, Shell Petroleum Co., St. Louis, Mo.; H. W. Richdale, Vapyre Corp., Brewster, N. Y.; George W. Bach, Skelly Oil Co., Kansas City, Mo.; Edward Braen, Braen & Gouchee, Hawthorne, N. Y.; H. Emerson Thomas, Phillips Petroleum Co., New York, N. Y.; B. D. Geroy, Illinois Bottled Gas Corp., Chicago, Ill.; S. L. Glickman, Natural Gas Co. of New Jersey, Hammonton, N. J.; Howard S. Bunn, Pyrofax Division of Carbide and Carbon Chemicals Corp., New York, N. Y.; H. E. Double, Bradford Gasoline Co., Bradford, Pa.

The day's meeting was attended, despite inclement weather, by approximately 150 members of the industry. In the varied program of prepared papers and group discussions all major problems of the bottled gas business were considered, with particular emphasis laid on the need for pooling information and experience for the benefit of all.

Harry M. Vawter, of the Curtis Publishing Co., who was guest speaker at the luncheon, stated that industry in America today is on the defensive, with manufacturing capacity far in excess of consumers' demand for products. The remedy for this condition, Mr. Vawter asserted, is dependent on the businessman's willingness to: (1) make sure his product satisfies a definite human want, (2) determine by cost analyses and statistical surveys just where his best market lies, and (3) canvass this best market systematically and intensively. He suggested that promotional work for bottled gas should center on the increased freedom and leisure made possible to the housewife by the modern gas range and other gas appliances.

At the morning session Paul H. Zook, of Sloan & Zook Co., discussed the potential market for bottled gas and the need of vigilance to protect it from competitive fuels. A paper presented by M. G. Farrar, of Carbide and Carbon Chemicals Corp., listed some of the special applications of propane outside the field of domestic usage. Franklin R. Fetherston, secretary of the association, gave a review of the marketing methods evolved to date in the bottled gas industry.

In the afternoon session a paper prepared by P. A. Anderson, of Utilities Distributors, Inc., counseled honesty with the customer and a shunning of high-pressure methods.

An analysis of the method for establishing rates for maximum revenue was presented by K. W. Rugh, of the Philgas Department of Phillips Petroleum Co. Much of advantage can be learned, he stated, from study of the scientific rate structures developed by the gas and electric utilities, with their carefully worked out sliding-scale arrangements for increased consumption and special usages. A customer survey, involving a call upon each individual user, will give basic data on competitive appliances in use which might be replaced by gas appliances, and will indicate the price level at which gas must be sold in order to obtain this load-building business. Mr. Rugh insisted that, after study of potential loads, the rate structure set up must be simple enough for the customer to understand it readily.

Dr. Arthur Senner, of the U. S. Department of Agriculture, reviewed the work done thus far in preparing a booklet on bottled gas for government publication and distribution. Delay has occurred in its completion, he explained, due to the crowded work-schedule of his department.

A committee which had investigated the potential bottled gas load from house-trailers reported that the cooking load alone would be slight. To be worth developing, the trailer business would have to include such other loads as water-heating, refrigeration and space-heating. In conjunction with equipment

manufacturers, a specially sized and constructed bottled gas unit is being designed, and a small, gas-fired refrigeration unit will soon be on the market for trailer use.

Clarence E. Cooper, of the Clarence E. Cooper Insurance Co., announced that his firm had made a study of the risks in liquefied petroleum gas handling and is prepared to write products liability insurance for producers and marketers. Throughout the meeting constant reference was made to the need for intelligent safety practices, not only to protect the assets and business of individual bottled gas companies, but also to forestall stringent legislative restrictions.

Just the propane cylinder valve you have been looking for . . . combines the famous Kerotest Forged Brass Diaphragm Packless Valve design with a spring safety device which automatically relieves *only* the excess pressure that may build up in a propane cylinder. Furnished with or without operating handwheel. Listed as standard by Underwriter's Laboratories.

KEROTEST MANUFACTURING COMPANY
PITTSBURGH, PA.

Franklin R. Fetherston, secretary, announced that many new active members had been enrolled in the association during the past year.

■ ■

Propose Equal Taxation for Butane, Diesel in Calif.

A bill to abolish California's 4-cent a gallon tax on butane, to put it on an equal competitive basis with diesel fuel, has been introduced in the California legislature by Senator Ed Fletcher, San Diego County. Senator Fletcher has stated that later he will introduce a measure providing that diesel fuel shall be taxed on the same basis as butane. To reconcile the two conflicting bills, the legislature will consider either no taxation for butane and diesel or a measure taxing both fuels at 4 cents a gallon.

■ ■

Carter Takes Universal Gas Plant Agency in Texas Area

Tom J. Carter, Hereford, Tex., will represent the Universal Gas Plant Co., with West Texas headquarters in Sweetwater, throughout the Texas Panhandle. The Universal company distributes butane gas. Mr. Carter has appointed John Cummins as distributor of the products in Deaf Smith County.

■ ■

White Offers Cooking Schools To Texas Gas Companies

A cooking demonstration by Frank Decatur White of the Detroit-Michigan Stove Co. was the feature of a cooking school held by Community Natural Gas Co. in Abilene, Tex. The school was held in the city hall auditorium, and covered the question, "Are Men Better Cooks than Women?" Mr. White is scheduled to present a demonstration for the Texas Cities Gas Co. in El Paso.

■ ■

Michigan Co. Constructs Line

A pipe line is soon to be completed by the Producers Refinery Co., which has a refinery plant south of West Branch, Mich., to bring gas from two wells of the Muskegon Development Co. in the Ogemaw field, Ogemaw County, Mich.

Iowa City Seeks Natural Gas Change-Over During 1937

CHANGING over to natural gas in Iowa City, Iowa, is the outstanding project planned for 1937 by the Iowa City Light & Power Co. The program was practically completed in 1936, when natural gas was brought to the Burlington Street plant from the western city limits.

Distribution of natural gas awaits a hearing before the circuit court of appeals. Federal Judge Charles A. Dewey issued a restraining order against city officials interfering with installation of natural gas, but ordered the company not to distribute it until the court of appeals had heard the case.

During the past year the company installed new pressure regulating equipment as well as new pressure equipment at the plant, in the distribution system and on customers' premises, and laid new and larger gas mains. Expenditures for additions and improvements approximated $35,000.

More new gas ranges and water heaters were installed during 1936 than ever before in the company's history. Billed gas sales for the first 11 months increased 5.6 per cent, and gas customers increased 1.24 per cent.

■ ■

Central Hudson Strives For Sales to Low Income Group

CENTRAL HUDSON Gas & Electric Corp., Poughkeepsie, N. Y., will concentrate during 1937 on sales to customers in the lower income bracket, leaving to their dealers the purchases of customers in the higher income brackets. Water heaters and gas ranges equipped for kitchen heating will be stressed.

The company has set as its quota for 1937 the sale of 918 water heaters and 484 two- and three-purpose gas ranges. All appliances will be sold through the co-operation of the company and the dealers, except for some items still in the experimental stage.

Central Hudson will continue, under a new plan, the financing of appliances for dealers.

Dealers reported to the company the sale during 1936 of 3,118 ranges, kitchen heaters, water heaters, season and year-round house heaters.

■ ■

Basford Co. Names Felton Los Angeles Manager

George Egleston, vice-president and general manager for the H. R. Basford Co., has just announced the appointment of R. S. Felton as Los Angeles manager for the company. Mr. Felton has long been identified with the gas appliance industry as sales manager for the Basford Co. in Los Angeles, and formerly with the Standard Gas Equipment Co. The Basford Co. is Pacific Coast representative for the Ruud Water Heater Co. and the Fraser Furnace Co.

■ ■

Cities Service Builds Line

Cities Service Gas Co., Bartlesville, Okla., is laying a 7-mile 8-inch pipe line near Cushing, Okla. The company is using reconditioned pipe. Joints are being oxy-acetylene welded by the lindeweld process.

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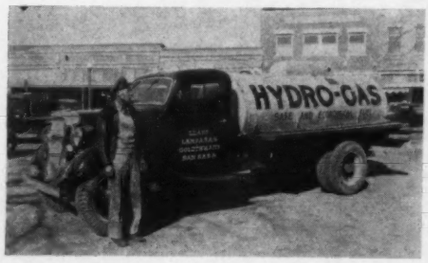
San Saba Butane Distributor Plans Expansion Program

EXPANSION activities of the San Saba Hydro-Gas Co., San Saba, Texas, include the purchase of a new 1100-gallon capacity butane fuel truck and plans to build a bulk butane station, according to A. J. Traut, manager of the company. The sta-



tion probably will be situated in the county seat of one of the four counties of Llano, Lampassas, Mills, and San Saba now being served by the company.

The company, which has been operating in this territory for approximately one year, serves butane furnished by the Lone Star Gas Co. out of its plant at Gordon, Texas. The San Saba Company, which is owned and controlled by the Hydro-Gas Sales Co. of San Antonio, operates a general store at San Saba, carrying all gas appliances suitable for butane.

The company has installed plants in many commercial establishments, and serves many ranches in the territory.

■ ■

Community Natural Names New Sweetwater Manager

Community Natural Gas Co., Dallas, Texas, has named R. H. Gray, manager at Sweetwater since 1935, as district manager at Abilene. He succeeds C. C. Redding, who has resigned from the company to enter the gas appliance business in San Antonio.

George P. Williams, for 12 years manager at Electra, has been transferred to Sweetwater as district manager.

Emery F. Doyle takes over the position previously held by Mr. Williams at Electra. Mr. Doyle since 1930 has been manager of the company's office in Waurika, Okla.

Lowell E. Lloyd, who has been with the company for six years at Walters, Okla., succeeds Mr. Doyle at Waurika.

■ ■

B. L. Sweet, Tucson Gas Man, Forms Own Company

Bruce L. Sweet, formerly industrial engineer for the Tucson Gas, Electric Light & Power Co., Tucson, Ariz. has formed and is proprietor of the Bruce L. Sweet Co. in Tucson. The company handles natural gas equipment including products of several nationally known manufacturers.

■ ■

Butane Served in Greenville

J. H. Mitchell has opened an office and show room in Greenville, Texas, for the distribution of butane gas and the display of gas appliances.

If YOU made cylinders

If you made your own cylinders, to meet all of your particular needs and requirements they would probably be exactly like Hackney's.

For over 30 years Pressed Steel Tank Company has been designing and manufacturing metal containers for gases, liquids and solids. Strength, uniformity, and dependability are built-in characteristics.

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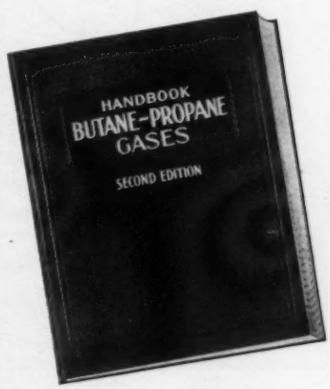

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The Value of Meter Records

In Effective Meter Control and Maintenance

By DAVID P. ALLEN

Washington Gas Light Company*

THIS paper deals with the more effective use of meter records to establish meter policies, and with certain economic aspects of meter maintenance, particularly as they involve the application of meter records for their proper control.

There is certainly nothing novel about the idea of using meter records to control metering policies. All gas companies keep meter records of greater or less completeness and most companies use them more or less to control meter policies. It must also be conceded that there is nothing novel in the idea of the more effective use of records to control meter policies.

Furthermore, numerous reports by the American Gas Association and Pacific Coast Gas Association have been produced contributing to the development of uniform repair practices and proposing more uniform and effective meter records, thus continuing to point out the desirability of greater use of such records to control meter policies.

In view of all the work that has been done and published, some may ask why it is necessary to discuss this subject of the more effective use of meter records. In the first place, in spite of all that has been written and said on this subject, I feel reasonably sure that many gas men have not given this important subject the attention that it deserves. In spite of the fact that many companies maintain quite complete and accurate records, I feel equally certain that they could be improved from the standpoint of their usefulness to control meter policies.. Finally, and most important, there are very few companies, either here or in any part of the country, that would not find it decidedly profitable to make more intelligent and effective use of their meter records to control their meter policies.

Possibly by using our Washington meter situation as an example I can give you a clearer picture of conditions that require the full use of complete records to get the right answer. For the past six years our records show a marked decrease in repair costs (Fig. 1), a definite improvement in performance (Fig. 2), and a definite decrease in the more expensive classes of repair (Fig. 3). On first thought one might be led to believe that we would be warranted in sitting back and considering our situation satisfactory. While the improvement is gratifying, we have at least two problems to work out that can only be established by developing more complete records than we now have. The first relates to condemning meters. Following quite general practice, we have condemned most of our three light meters, all of our old, large size, small capacity meters and are now condemning five light meters more than 27 years old, as well as many much younger. The average age of our meters condemned during 1936 was 25.0 years; 1935, 24.2 years; 1934, 23.3 years. In spite of the continued increase in O.K. meters, decrease in slow meters, and moderately low maintenance cost per meter and a low unaccounted-for, we feel quite sure we would save money by replacing more of our older five light meters. Right now we don't know how much further we should go in condemning these old meters, but we are working on the problem, segregating meters by age groups, and tabulating and plotting the performance and repair history of each group. When we get the answer, we expect to be able to show definitely that it is the correct one. In the same way, in 1931, with the introduction of natural gas, we had a decided change for the better in the character of gas sent out. There was a noticeable decrease in the bleaching of diaphragms and in gummy deposits in the bottoms of meters. We had started, in 1931, to segregate performance statistics by "date of last repair" for the purpose of checking our repair period schedules. We soon realized that, with the

*Presented before the New England Gas Association, Operating Division, Parker House, Boston, Mass., January 8-9, 1937.

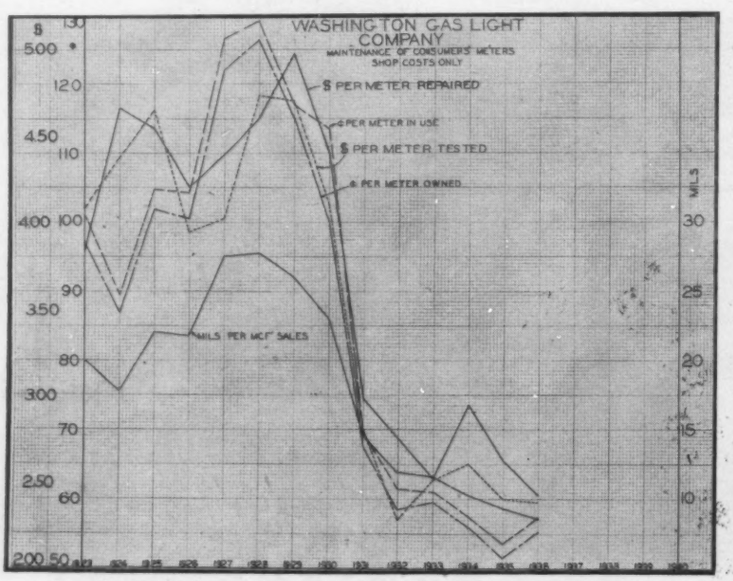

FIG. 1. Shop costs on the maintenance of customers' meters.

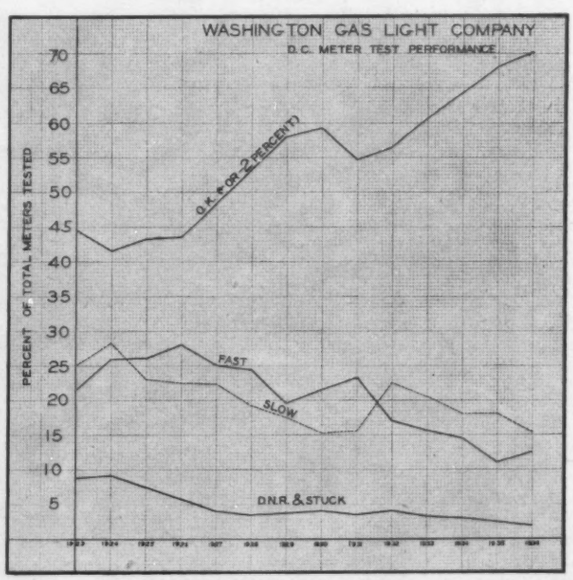

FIG. 2. Meter test performance for the District of

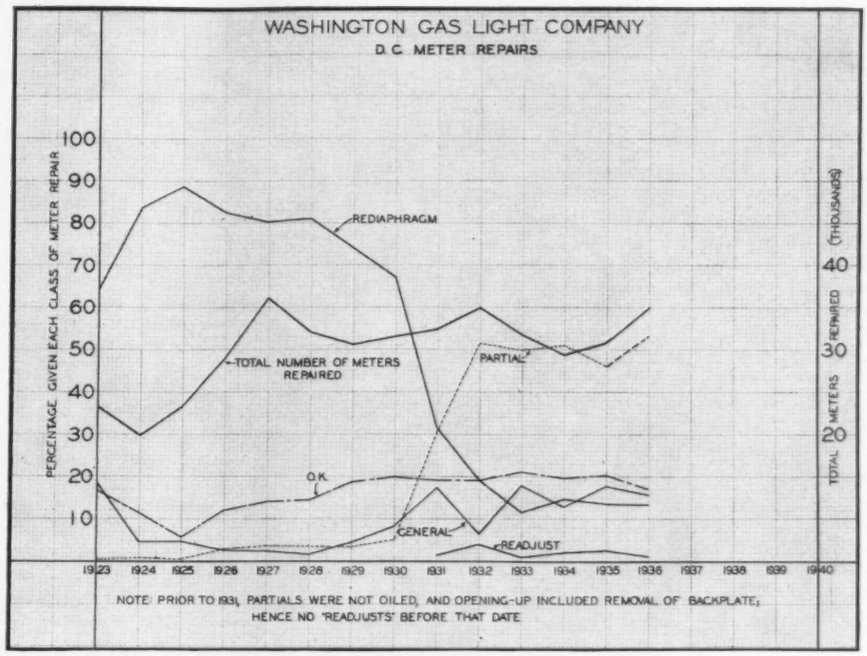
WASHINGTON GAS LIGHT COMPANY
D.C. METER REPAIRS
PERCENTAGE GIVEN EACH CLASS OF METER REPAIR
TOTAL METERS REPAIRED (THOUSANDS)
REDIAPHRAGM
TOTAL NUMBER OF METERS REPAIRED
PARTIAL
O.K.
GENERAL
READJUST
1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940
NOTE: PRIOR TO 1931, PARTIALS WERE NOT OILED, AND OPENING-UP INCLUDED REMOVAL OF BACKPLATE; HENCE NO 'READJUSTS' BEFORE THAT DATE

FIG. 3. Meter repairs for the District of Columbia territory.

marked change in gas characteristics, past experience was not a reliable guide for the future, so we discontinued this analysis by date of last repair, and arbitrarily decided on certain periods of service beyond which certain classes of repair would be given. Whether those periods were right or wrong we could not say at the time, nor can we say at present. Now, with a five-year change period and six years' experience with mixed-gas, we are in a position to determine whether our repair schedules are right or should be changed. Again, meter records must be used to give the right answer and again it involves intelligent segregation of performance and repair data to reach the most economical repair schedule.

Where meter practices are seriously bad, often little more than good judgment and metering experience may be needed to effect great economies, but where metering practices are reasonably good, careful analyses of complete and accurate meter records may be necessary to make worth while savings. There are three measures, not particularly involving the use of records, which are so obvious that I would hesitate to mention if my own experience and that of others had not disclosed that their need therefor occasionally exists.

1. Unless your company is already doing it, it may pay to turn some good, bright clerk loose on consumers' ledgers to pick up slow and D.R. meters. After he has listed those that look suspicious, have him check the list with meter readers, collectors or service men who might, through familiarity with the conditions, be able to eliminate those where the decreased registration could be readily explained. The rest should be given a "gradual cease" test on the premises and if found to be actually slow or D.R., should, of course, be changed. The offer of a reward of a dollar or two for each slow or D.R. meter reported by a meter reader or service man has also been found to be an effective means of getting the seriously "bad actors" off the lines. Some companies have reduced "unaccounted-for" and made decidedly worth while savings by such simple procedures.

2. Meter testing practices. Some may be surprised, or even offended, at my suggesting the advisability of checking meter testing practices. I believe, however, that this is one of the first things that should be done, particularly in small companies, when "unaccounted-for" begins to get seriously out of line for no apparent cause. The shop foreman may be both competent and conscientious, but where no one appears to take much interest in his department or to check-up, occasionally, on how well he does his work, it is only natural that careless practices should sometimes develop and the care of provers be neglected, with the result that incorrect meters may get back into service. This condition would not, of course, apply where meters must be sealed by state inspectors, as in Massachusetts or in the larger shops generally, but in smaller properties, it is a good starting point to look for trouble. Instructions for the care of provers and for the testing of meters are contained in several good handbooks easily available.

3. The third point is really only an amplification of the second. When I see a meter shop with poorly arranged and poorly maintained testing facilities, where meters are carelessly handled and the general appearance of the shop is slip-shod, and then discover that their records indicate that 80 or 90, or better, per cent of the meters removed from service are correct, I begin to be skeptical. It might pay to be a bit skeptical if your meter performance appears too impressively good.

Two actual examples of "big yields" with the use of only simple "tools and methods" may well illustrate this point. In one New England company, the "unaccounted-for," ranging from 18 to 20 per cent for several years, was reduced to less than 10 per cent within a four-year period by little more than correcting very bad meter testing practices, by the replacement of obsolete and worn out meters, and by the systematic examination of consumers' ledgers to detect extremely slow and D.R. meters.

In another company, meter maintenance costs were reduced from approximately $137,500 for the year 1930, to approximately $96,800 in 1931, almost entirely by a revision of repair schedule whereby the proportion of meters given general and rediaphragm repairs was tremendously reduced. These examples show the possibility of big savings through the finding and correcting of improper metering practices.

So much for "first aid measures" that don't particularly involve the use of meter records but are so simple and practical that I thought best to mention them in passing.

As I stated in my simile, where metering practices are reasonably good, careful analyses of complete and accurate meter records may be necessary to make worth while savings. It is my hope that this paper will outline something of the statistical "tools" and methods to use in situations where, because good practices have been followed for years, more elaborate methods must be employed to make worth-while savings. In connection with the latter situation, I will mention some of the work of the A.G.A. Meter Sub-committee for the past three years in summarizing the work of previous investigators and in developing certain methods that we believe will be of assistance in controlling meter policies.

In a previous meter committee report, we stated that, "Fundamentally, the policy governing meter changing, testing, repairing and replacement should be that which will produce the lowest combined cost of losses in revenue through inaccurate meters, changing meters for test and repair, testing and repairing meters, fixed charges on investment in meters, and replacement cost of condemned meters.

Not one of these five factors can be improperly evaluated, and it is self-evident that if any one of these factors became badly out of line, the combined cost of all five would be affected adversely. It is equally evident that if you don't know what these costs are, it's going to be impossible to combine them to get the lowest combined cost. Herein lies the importance of adequate meter records so developed that they can be readily applied to establish the five factors which can be truly considered the economic fundamentals of metering. It is a scientific problem calling for scientific analysis.

From a repair policy standpoint there are really only three things that can be done.

1. Meters can be changed or removed either for test and repair or to reduce investment in idle meters.

2. Once in the meter shop, they can be tested and, if necessary, repaired.

3. If they are not worth repairing, they can be condemned and replaced.

Meter shop policies, then, must control these three factors:

1. When and how frequently meters should be removed and brought in for test and repair or to increase stock?

2. How extensively they should be repaired?

3. When they should be condemned?

Again, from a repair policy standpoint, there are 11 distinct types of information that must be employed in establishing policies, and for their most effective use, several of them must be kept separately for each of the several groups into which it may be necessary to segregate meters for policy control purposes. The 11 classes of information are as follows: (1) Age of meter. (2) Incoming proof. (3) Date of last repair. (4) Class of last repair. (5) Age of diaphragm. (6) Cause of removal. (7) Cost of changing or removing from service. (8) Cost of testing. (9) Cost of making various classes of repairs. (10) Original cost. (11) Cost of new meter of similar size.

The reason that these various records or types of information are needed is as follows:

The age of a meter and its original cost are necessary to determine its amortization of depreciation per year. Amortization will give a slightly lower cost per meter year over the straight depreciation cost, but the curves for each are very similar.

Incoming proof and cause of removal are necessary to determine or estimate the loss in revenue due to inaccuracy. Period since last repair, class of last repair and costs of various classes of repairs are necessary to determine the maintenance cost per meter year for the last period in service. Cost of changing and testing and the period since last repair are necessary to determine these costs on a per meter year basis.

Cause of removal enters into the development of the possible period that a meter of any age may remain in service when placed in the field. It also enters into the basis for a selective method of repairing, although as mentioned previously, proof, age since last repair, last repair, and age of diaphragm are of greater importance.

The cost of new meters to replace old meters is important, because it may be used also as a basis of depreciation. Where a company has a large number of meters of a size of varying ages, the cost of changing, testing, repairing, and replacing, coupled with the loss in revenue due to inaccuracy, may be used as an index of meter operations and cost per year.

To arrive at the lowest combined five factors or elements involved in metering by employing the 11 classes of information, obviously involves quite complete records and no small amount of study and calculation to correctly arrive at their combined cost. At the same time, it is the only mathematically correct way to establish the lowest overall cost of metering. The various factors can be combined, and once records are properly set up to give the essential information, the task of applying it is not unduly involved or laborious.

Of the 11 classes of information required, eight are immediately available from any well-maintained meter records system, namely: (1) Age of meter. (2) Incoming proof. (3) Date of last repair. (4) Class of last repair. (5) Age of diaphragm. (6) Cause of removal. (7) Original cost. (8) Cost of a new meter of similar size.

Of the remaining three, the cost of changing or removing meters from service should not ordinarily be difficult to establish; the cost of testing meters and of making each different class of repair—particularly for different sizes of meters—is something that comparatively few repair shops develop accurately and completely, or employ any degree of uniformity as to the various costs included. This appears to be one of the weaknesses of most meter record systems and one that makes difficult the full application of meter data to establishing policies. It is for this reason that our A. G. A. Meter committee devoted so much of its 1936 report to meter repair cost accounting, that is, to develop simple and uniform repair cost accounting procedure that could be universally applied, irrespective of repair systems employed or form in which cost records were kept. The only requirement being that all cost data be available in some form or other.

With testing and repair cost data accurately developed, either by the system above described or by any other system that gives this information accurately, it is simply necessary to combine it with the other data that is readily available to give all that is required to calculate the lowest overall cost of metering.

Considering next the general situation, I would like to close this paper with eight suggestions relative to meter practices and records.

1. Irrespective of how large or how small your company may be, or in what form or by what department your various meter records may be kept, there are eleven definite types of information needed for complete and correct analyses to establish the lowest overall cost of metering. I suggest that you analyze your meter records as to how completely and accurately they provide the 11 types of information enumerated above.

2. Segregate your meter removal tests by meter sizes and types and according to the date and nature of either last repair or age of meter. No rule can be made as to the basis of segregation. It must be governed largely by meter performance and necessarily be a matter of study and good judgment. It will not be the same in all companies and would normally vary in any one company.

3. Develop a system of meter testing and repair cost accounting that will establish the true cost of each class of repair for the sizes of meters that predominate in your situation. Only the very large repair shops are, in my opinion, warranted in keeping repair costs in such detail as to show every element of cost for each size and type of meter. The effect of minor errors in repair costs of sizes of meters, of which you have relatively few, will probably be less costly than would be the accounting system to develop these costs accurately. Be sure that all proper elements of cost are included and correctly evaluated. At present there is great lack of uniformity among companies in repair cost accounting procedure.

4. Tabulate the meters that you condemn by size, type and year of purchase. This will serve as a guide as to the rate at which you are weeding out the "oldtimers."

5. Develop meter inventories to show the number of meters owned by sizes, type and

(Continued on Page 64)

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Correspondence regarding any special need of pressure control will be given careful attention.

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S.C.M.A. Meeting Featured By Reference Meter Paper

A DISCUSSION of the Joliet reference gas meter by C. B. Heartwell of the Standard Gasoline Co. featured the regular monthly meeting of the Southern California Meter Association which was held on Thursday, January 28 at the Van Matre Inn, Huntington Park, Calif. Guy Corfield, president of the association, conducted the meeting.

Honored guest at the meeting was V. C. Jarboe, former superintendent of the meter department of the Gas Service Co., Kansas City, Mo., who retired recently to take up residence in Long Beach, Calif.

Contributing to the enjoyment of the meeting were sport motion pictures presented through the courtesy of the Associated Oil Co. of California. Those presented featured the U. S. C.—Notre Dame and Washington—Washington State football games, a portrayal of crew activities at the University of California, and color scenes from the 1937 Tournament of Roses parade.

The motion picture and musical entertainment provided during the dinner were arranged through the courtesy of the Pacific Meter Works with George Stevenson, sales engineer, acting as master of ceremonies.

An amendment to the Association's by-laws creating a new division in membership was passed. Under the new set-up membership will fall into three divisions: regular membership with dues at $2.50 per year, for gas meter men; associate membership, with dues at $2.50 per year, for employees of manufacturers and sales distribution organizations; and sustaining membership, with dues at $15.00 per year, for the manufacturing and sales distributing companies.

During the meeting further plans for the Association's annual Hi-jinks to be held on Saturday, February 27, at the Breakfast club on Riverside Drive in Los Angeles, were reviewed by James Dunn, entertainment chairman.

■ ■

Commonwealth Edison Co. In Plan To Absorb Three Illinois Utilities

IN one of the biggest financial deals in Chicago history, the Public Service Co. of Northern Illinois, Chicago, the Western United Gas & Electric Co., Aurora, Ill., and the Illinois Northern Utilities Co., Dixon, Ill., will be united into one organization headed by Commonwealth Edison Co., Chicago.

Shareholders of Commonwealth Edison on January 22 authorized the directors to buy out the minority security holders of the three utility companies. Though the companies will function as wholly-owned subsidiaries of the parent company, each company will retain its corporate and physical identity. The consolidation will not take effect for several weeks. It must be passed upon by the Illinois Commerce Commission and the Securities and Exchange Commission.

Millions of dollars will be needed, according to James Simpson, chairman of the board of directors of the purchasing company, for construction of plants and transmission lines, and consolidation will create a sounder financial structure for this financing.

■ ■

S. N. Brown and R. H. McClintic Named To Koppers Co. Executive Posts

APPOINTMENT of Stanley N. Brown and Robert H. McClintic as assistants to the president of Koppers Co. was announced last month by J. T. Tierney, president.

Mr. Brown will be concerned with company financial and executive matters, while Mr. McClintic will be in charge of all advertising and sales promotion for Koppers Co., its divisions and subsidiaries, except the advertising of the company's coke plants.

Mr. Brown formerly was associated with Koppers Coal Co., and Mr. McClintic was advertising and sales promotion manager of Koppers Products Co.

The name of Koppers Gas and Coke Co. recently was changed to Koppers Co. and several subsidiary companies and their divisions were made divisions of Koppers Co.

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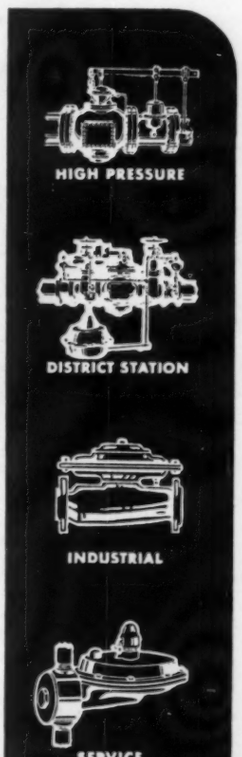

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Low Pressure Service or Appliance Regulators.

District Station Regulators, Single or Double Valve—Auxiliary Bowl and Automatic Loading Device Optional.

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REYNOLDS GAS REGULATOR CO.
ANDERSON, INDIANA, U. S. A.

GAS CONTROL SINCE 1892

COOPERATIVE LOAD BUILDING

P. C. G. A.

BULLETINS

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Memo

This ALL-GAS home was featured in the January issues of

ARCHITECT & ENGINEER

—

CALIFORNIA ARTS & ARCHITECTURE

Charm of old Monterey

"ALL GAS" COMFORT OF TODAY

Inherent in the Monterey Spanish design is a room arrangement that creates a difficult heating problem. A happy solution was found in this Berkeley, California home. A gas warm air unit-conditioning plant with automatic control, centrally located to serve all the rooms grouped around the patio, assures uniform, healthful comfort throughout. Gas cooking and water heating too, of course—this new home is completely modern! ☆ ☆ Your Gas Company will gladly assist you in planning for gas in your new home.

Gas THE MODERN FUEL

Posed by Jed Prouty and Spring Byington of the popular "Jones Family" cast, Twentieth Century-Fox. See their regular fanclub at your neighborhood theatre in "OFF TO THE RACES."

"Why, John— have you forgotten?—"

OUR NEW AUTOMATIC *Gas* WATER HEATER MEANS NO MORE TEA KETTLE SHAVES!"

AN early morning mental lapse at Father's age can be forgiven. But not the years of makeshift water heating that formed his tea kettle habit. ★ Perhaps you know families who are needlessly hot-water-handicapped. Nursing along decrepit old "match-lighters." Trying to adapt a Gay Nineties appliance to life's new, swift tempo. It shouldn't *and needn't* be done! ★ A modern GAS AUTOMATIC assures unstinted gallonage for every hot water faucet, at split penny cost—a week's shaves and showers for the price of your morning paper—a month's big washings for less than a movie ticket. ★ Comfort, convenience, health, happiness, even "her" charm—all hinge upon such *little thing*, as the down payment on a new GAS AUTOMATIC. Is your water heater a service-worn veteran? Retire it now—with the cooperation of your Gas Company or Appliance Dealer.

WATER HEATING • COOKING • HEATING • REFRIGERATION

Its dependability, economy and generous supply, no other water heating device equals the Gas Automatic.

Gas THE MODERN FUEL

THE
JONES FAMILY
(*Twentieth Century-Fox*)
again lends human interest to a powerful sales message on
GAS
WATER HEATING

★ ★ ★

Reduced-size facsimile of full page February domestic ad for general and women's magazines.

Pacific Coast Men Honor Vandaveer; Welcome Suffron at Banquet

PACIFIC Coast gas industry men representing utility companies, manufacturers, and dealer groups gathered en masse at a dinner meeting held Wednesday, January 27, at the Jonathon Club in Los Angeles to pay tribute to Dr. F. E. Vandaveer, supervisor of the Pacific Coast branch of the American Gas Association Testing Laboratories, who has been transferred to new duties as research engineer at the Cleveland Laboratories, effective February 15. Welcomed to the Pacific Coast at the dinner was F. O. Suffron, formerly research engineer at Cleveland, who took over Dr. Vandaveer's duties in Los Angeles on February 1.

F. E. VANDAVEER

F. O. SUFFRON

The meeting, which was attended by 180 gas men, was a fitting and stirring display of the high esteem in which Dr. Vandaveer is held for his work in Los Angeles.

Principal speaker of the evening was A. F. Bridge, vice-president in charge of operation for the Southern Counties Gas Co., who paid tribute to Dr. Vandaveer and introduced Mr. Suffron. In his address, Mr. Bridge outlined the progress made by the Los Angeles branch of the laboratory during the four-year leadership of Dr. Vandaveer, and epitomized for the attending gas men the invaluable service rendered. A further tribute to Dr. Vandaveer was expressed in a letter from A. B. Macbeth, president of the Southern California Gas Co. and a former president of the A.G.A.

Representing Pacific Coast utility companies, H. L. Masser, vice-president and assistant general manager of the Los Angeles Gas & Electric Corp., spoke of the pleasant and profitable relationships between the laboratory and the utilities during the term of Dr. Vandaveer's leadership. N. R. McKee, vice-president of the Pacific Coast Gas Association, in speaking for the Association, pointed out the part played by the laboratory in co-ordinating and harmonizing the viewpoints of utilities and manufacturers. A farewell from the Pacific Coast manufacturers was expressed by E. S. Hoyt, Jr., of the Hoyt Heater Co. Carl Swigart, trade relations representative of the P. C. G. A., acted as toastmaster.

A prolonged round of applause greeted Dr. Vandaveer as he rose to express his appreciation both for the tribute given him at the dinner and for the co-operation and pleasure afforded him in his four-year association with the men on the Pacific Coast.

Reviewing the progress made by the laboratory during the past four years, Dr. Vandaveer stated that the policy of the laboratory has always been to uphold the value of the A.G.A. Approval seal, to give the manufacturers as much value as possible for the test fees paid to the laboratory, and to be of maximum service to the gas utilities and the industry in general.

During the past four years, in spite of the depression, the laboratory has greatly increased the volume of its service to both manufacturers and the utilities. Also during this period the number of manufacturers operating on the Pacific Coast has greatly increased. Both of these facts testify to the increasingly important position of the Los Angeles laboratory in the industry on the Pacific Coast.

As a parting token a golf bag and a set of Bobby Jones clubs was given to Dr. Vandaveer from the assembled group. The presentation was made by E. L. Payne of the Payne Furnace and Supply Co., Beverly Hills, Calif.

■ ■

Commercial Kitchen Sales Is Topic For March Meeting

A CONFERENCE for gas utility men and appliance manufacturers interested in the sale and servicing of kitchen appliances for hotels, restaurants and lunch rooms and in all other commercial gas appliances, will be held in Philadelphia, Pa., on March 2 and 3. It is sponsored by the Industrial Gas Section of the American Gas Association. The Pennsylvania Gas Association will join the conference instead of holding its annual sales meeting.

Sales will be the chief topic of the conference. There will be symposia on commercial space heating, volume water heating, and commercial cooking. There will also be a semi-technical description of the new commercial-size gas refrigerators. Sales plans for launching this new outlet for gas will be presented.

The Philadelphia Gas Works Co. will display a variety of modern counter gas cooking appliances.

■ ■

Allentown-Bethlehem Loses H. F. Frey, Assistant Treasurer

Howard F. Frey, for 13 years assistant treasurer of the Allentown-Bethlehem Gas Co., Allentown, Pa., and manager of the accounting department since 1910, died on December 18 as he was about to enter his home after attending a testimonial meeting held in his honor by the accounting department. He had been with the company for 32 years.

■ ■

Plans Filed for Havre, Mont., Gas Distribution System

Plans and specifications for a municipally operated natural gas distributing system in Havre, Mont., were filed on Jan. 15 with state authorities of PWA, which has allocated $163,636 for construction of the distributing system, together with supply lines. The funds consist of a loan of $90,000 and a grant of $73,636.

According to City Clerk W. H. White, Havre has contracted with a local producer, represented by Frank Browne, to provide gas containing 900 B.t.u. It will come from nearby fields. The system will be a low-pressure system with 4- and 6-inch service lines. Total annual consumption has been estimated at 500,000,000 cu. ft.

The contract for construction will be let by the state PWA office at Helena, and the work will be under PWA supervision.

■ ■

LeFlore County Co. Completes Line From Red Oak Field

TWENTY-SIX miles of 8-inch pipe line were completed and put in service at the close of the year by the LeFlore County Gas and Electric Co., Poteau, Okla., to bring gas from the company's Red Oak field to its compressor station southeast of Cameron. The company already had a 6-inch line from the Red Oak field, running toward Howe.

The company now supplies part of the gas for Fort Smith, the Athletic Mining and Smelting Co. at Fort Smith, the Lincoln Power Co. near Howe, the city of Wister, as well as the American Indian Oil & Gas Co., and the Service Gas Co., which distribute gas in Poteau, Heavener, Spiro, Cameron, Howe, and Red Oak.

Construction of the new 8-inch line was started early in November, after aerial photographs made at an altitude of 18,000 feet had helped in determining the route.

■ ■

Mountain Fuel to Construct New Salt Lake City Line

MOUNTAIN Fuel Supply Co., Rock Springs, Wyo., will begin construction about April 15 of a 10-inch 24-mile natural gas pipe line, according to C. R. Hetzler, vice-president. The line is to run from the company's Clay Basin wells, in northeastern Utah, to its main 16-inch Salt Lake City-Ogden line, connecting with the trunk line at a point in Salt Wells Canyon, in southwestern Wyoming. The company expects to complete the line in 60 days.

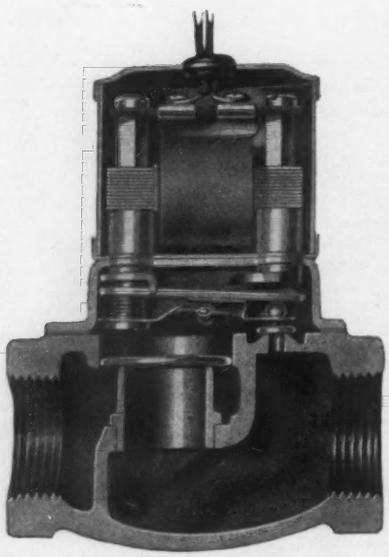
Mountain Fuel Supply Co. plans a drilling program during 1937 that includes a new well for the Clay Basin field, two wells on the Powder Wash structure, Moffatt county, Colo., and two wells on the South Baxter Basin field, Sweetwater county, Wyoming.

■ ■

Pacific Coast Gas Men Speak At Furniture Market Meeting

H. M. Crawford, general sales manager of Pacific Gas and Electric Co., San Francisco, spoke on utility co-operation with dealers at a dinner which was a feature of the forty-third Western Furniture Market week in San Francisco. A radio and appliance show was held during the evening. Mr. Crawford is a past president of the Pacific Coast Gas Association.

James F. Pollard, president of Seattle Gas Co., Seattle, Wash., and now president of the P. C. G. A., spoke on "Dealer Benefits from National Advertising."



Nicostat Products Develops Thermostatic Control Valve

A VALVE for the thermostatic control of gas has been developed by Nicostat Products, Inc., of Buffalo, N. Y., and is now in production in ⅜, ½ and ¾-inch sizes.

The valves are made in two types—thermostatically operated for direct mounting on space heaters, and electrically operated for remote control through a bell-ringing transformer and wall thermostat.

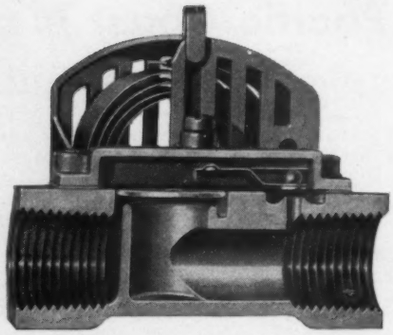
Both types of valves are identical in their function. In the bimetal type the spiral bimetal is used as an operating medium which bimetal opens and closes the bleeder according to room temperature at the valve, and will control temperatures within 1½ degrees throughout a range of between 60 and 80 degrees F.

The magnetic type is operated by a simple low voltage (3 watts) magnet in combination with an automatic recycling device in case of current failure, and is used in conjunction with a two-wire snap action wall thermostat.

The valve can best be visualized as a diaphragm valve, with the diaphragm cut loose from its housing and made in the form of a small disc, which disc floats loosely in the chamber. The disc, being of less diameter than the chamber, allows the gas to flow or leak around its circumference and down the bleeder hole to join the down stream flow.

During the period that the bleeder is open, gas pressure above the disc is equal to the downstream side, and below the disc the pressure equals the upstream side; hence the pressure differential holds the valve open to full; immediately the bleeder valve closes, upstream pressure is built up above the disc by the gas leakage around it, and this with the influence of gravity and suction, snaps the disc on to its seat, entirely closing the valve. It will then be seen that gas pressure is above the disc and atmospheric pressure below.

At the present time valves are being produced up to ¾ inches in size. The company



expects to be in production on 1 and 1¼ inch sizes in the near future.

Nicostat Products, Inc., have appointed Montgomery Bros., of San Francisco, Los Angeles, Portland and Seattle, as their exclusive distribuors in the eight Western states and the territories of Hawaii and Alaska.

■ ■

Meter Records Aid In Meter Maintenance

(Continued from Page 60)

year of purchase. This will facilitate grouping by age and type for performance analyses and to calculate the investment involved in replacing meters when analyses indicate that replacement is most economical.

6. Mark each meter brought in for repair either with a metal repair tag or in some permanent way to indicate the date and nature of last repair. If the year made is not indicated on the meter maker's tag, it will also be well to add this information. This ready indication of past history will facilitate correct segregation for repair and for condemnation.

7. Keep constantly in mind that meters as made today are greatly improved over meters made from 15 to 20 years ago, and that you can reasonably expect much longer sustained accuracy and economic life. If the cost of repair of old meters anywhere near approaches the cost of a new meter of corresponding capacity, thought and study should be given as to the advisability of repairing the old meters.

8. Finally, please keep in mind what I have said as to there being money in meter records. I believe that many of you can find it, if you go after it in the right way. I have tried to tell you some of the things that should assist you in doing it: First—naturally—correct and efficient shop practices; second, greater use of better meter records.

■ ■

Kansas Pipe Line Co. Builds Compressor Plant at Elmcreek

Kansas Pipe Line & Gas Co., Salina, Kan., has completed a compressor plant south of Elmcreek, Neb., and has moved its Elmcreek offices to the new location.

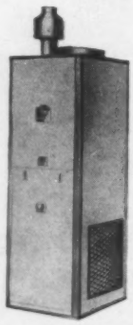
The company does not expect to use the new plant continuously but only when needed to boost the flow of gas from the plant in Stockton, Kan.

PACIFIC

Gas Heating Appliances

The Correct Answer to ALL Heating and Ventilating Problems

THERMOLATOR
Radiates and Circulates Cheerful Warmth



FORCED-AIR UNIT FURNACE
Heats - Ventilates - Purifies; no basement required

Never since gas became the nation's most popular fuel has it been so imperative for utilities and dealers to recommend and install the proper appliances that assure complete consumer satisfaction, and gain freedom from troublesome service details. PACIFIC makes a gas heating appliance for every need—for any size building—in any climate.

It will pay you to investigate the PACIFIC line. Write for complete information NOW!

FLOOR FURNACE
For Floor or Wall Installation Where No Basement Is Available

PACIFIC GAS RADIATOR CO.

Factory and Foundry:
Huntington Park, California

Offices and Showrooms:
1740 W. Washington Blvd., Los Angeles

REDUCED GAS RATES
GAS BILL
Cut HEATING COSTS
HEATING COST CALCULATOR
Figure it out for yourself
20 000 A. G. A. INPUT RATING
$1.26 HOURLY OPERATING COST
$1.06 HOURLY OPERATING COST
$ .90 HOURLY OPERATING COST
New Reduced Gas Rates Save You Money

MADE 'SPECIALLY FOR RETAIL APPLIANCE DEALERS

WHAT IT IS: A vest pocket manual of information on gas heating and water heating **plus** a handy calculator of operating costs.

HOW IT WORKS: Each page is given to one particular type of appliance—a picture and a brief explanation of what the appliance is and what it will do.

THE CALCULATOR is built into the back cover. The cover is double with four little windows punched in one end. Inside is a printed card. The card is set by sliding it in or out until the figure in the top window corresponds with the A. G. A. rating of the appliance. This done, the figures in the lower windows will show the **maximum** hourly operating cost.

OBVIOUSLY this little device is a selling tool. It supplies a quick, positive answer to any question about operating cost. It explains "B. T. U."—gets the customer to think in terms of heat-units-per-dollar. It shows heating, cooking and water heating to be separate and distinct services, even though billed as one. In short, it sells the economy of gas fuel—helps you sell the appliances. Every customer, whether he buys or not, should take one of these booklets away with him.

ORDER A SUPPLY FOR CUSTOMER DISTRIBUTION . . . . TODAY!

P·G·and E·

PACIFIC GAS AND ELECTRIC COMPANY

Owned · Operated · Managed by Californians

WG 202—237

L. A. G. & E. School Has Varied Program

(Continued from Page 22)

papers are checked, signed, and returned to the committee. Results are compiled and the courses to be offered determined. Next, a final schedule is printed and posted on our 200 bulletin boards in every office, shop, and station. A class sponsor is appointed for each of the new classes and it is his first task to notify each member regarding the classes checked on the questionnaire.

Experience seems to show that our students regard their enrollment much more seriously when it costs something. For this reason the practice of charging at least a registration fee has grown up in some of the best administered schools. The fee may be returned when the course is completed, thus serving as an incentive to continue to the end of the work undertaken. It prevents those from entering who are simply curious or enroll for many of the purposes other than serious study.

The more prompt we are in dropping men who fail to show up a few evenings without giving an excuse, the better our attendance becomes and the fewer men we lose. When we first started out to obtain good attendance by this means we were told we couldn't treat evening school men in such a way and keep them. The contrary is true. They appreciate good business-like treatment and react favorably.

In order to maintain the interest of the students, and properly supervise the work of the instructors, it is necessary that a complete system of records be maintained. Every class successfully completed and every educational activity engaged in is recorded in full on each student's card. Credits are accumulated and when all requirements are met, junior and completion certificates for 250 and 500 hours of class room work in related subjects are awarded. These certificates are in the fields of gas, electric, and steam engineering, public utility business administration, and general culture.

Each student, upon completion of any Evening School course, is issued a Certificate of Completion, duly signed by the president of the Employees' Association, the instructor, and the chairman of the committee, each Certificate attesting to "a satisfactory completion of the prescribed course."

Allied Organizations

Our Evening School has a number of organizations which have been built around an interest common to their creators and which are usually spoken of as "special interest" organizations. They function semi-independently of the Educational Committee; however, in most instances, they court the support of the Committee and use the facilities provided. They vary from the highly organized self-perpetuating membership organizations to very informal groups bound together only by a chairman and a guiding committee. In all cases they are valuable vehicles for expression for Association members to share in the interest they represent.

The Association Players: This club, essentially the "Little Theatre" of the Association, is an amateur theatrical organization which, during its brief existence, has made rapid strides toward proficient standards as evidenced by the type of plays produced, the artists and actors assembled, and the improvement in the equipment and facilities.

The Friends of Music: This is an organization whose time is chiefly devoted to a study of the piano. A part of each meeting is dedicated to the study and appreciation of music and to the encouragement of the music performance. Outside concerts and the radio are utilized. Music history and the lives and times of composers come in for their share of attention.

The Night Lamp: The Evening School publication, issued from time to time as the occasion demands.

Lecture Series: The fall and spring Artists Series have always been well attended. These programs can rightfully be called popular. Individuals are not required to contribute to the discussions. Institutional courses are not offered. Among the speakers appearing last season were those prominent in such fields as journalism, police work, literature, travel, and industry.

Annual Hobby Show: The annual Hobby Show is a revelation. The entire twelfth floor of the main office is transformed into a combination work shop, art exhibit and laboratory. Hundreds of entries from tropical fish to amateur television are displayed. Many of the classes have their booths with star students holding forth. Stamps, coins, oil and water color photography, butterflies, 8-millimeter movies, flowers, trains, airplanes, old books, architects' wood work, toys, metal work, radio—the room hardly accommodates the exhibits. Many employees, visiting the show, went in without an interest in the world and came out with the germ of an idea for some avocation.

Public Speaking Groups: The Six O'clock, Vulcanian and After-Hour Public Speaking clubs with a combined roster of 120 all grew out of public speaking classes sponsored by the school. Each group meets monthly for dinner and a program of prepared after-dinner talks.

Graduation Exercises

The annual educational exercises are held in June each year in Bovard Auditorium, University of Southern California. Last June Addison B. Day, president and general manager of the company, spoke to the student body and introduced the guest speaker, Dr. Paul Perigord of the University of California at Los Angeles. Some 2,000 employees and members of their respective families attended. Seven hundred and seventy-one Certificates of Completion were awarded to the 40 class sponsors. Junior Certificates in Gas and Electrical Engineering were also awarded. Honor students received memberships in the National Geographic Society.

CRANEQUIP throughout for years of satisfactory service. Specify Crane Valves—Fittings—Fabricated Pipe—Piping Accessories

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U. S. SUPER de LAVAUD CAST IRON PIPE

"Cast without chill in a metal mold"

U. S. PIPE AND FOUNDRY COMPANY
Burlington, N. J.

Natural Gas Men Plan May Meeting

(Continued from Page 34)

Oklahoma Natural Gas Co., Tulsa, Okla.; H. P. George, Southern California Gas Co., Los Angeles, Calif.; S. W. Meals, Carnegie Natural Gas Co., Pittsburgh, Pa.; J. G. Montgomery, United Natural Gas Co., Oil City, Pa.; J. French Robinson, Peoples Natural Gas Co., Pittsburgh, Pa.

Natural Gas Sales and Utilization Committee: F. M. Banks, chairman, Southern California Gas Co., Los Angeles, Calif.; C. E. Bennett, Manufacturers Light and Heat Co., Pittsburgh, Pa.; W. C. Grant, Lone Star Gas Co., Dallas, Texas; H. P. Sedwick, Public Service Co. of Northern Illinois, Chicago, Ill.; J. W. West, Jr., American Gas Association, 420 Lexington Avenue, New York City, N. Y.

Ex-Officio Committee: George E. Welker, chairman, Natural Gas Department, United Natural Gas Co., Oil City, Pa.; Robert W. Hendee, vice-chairman, Natural Gas Department, Colorado Interstate Gas Co., Colorado Springs, Colo.; A. E. Higgins, secretary, Natural Gas Department, Dallas, Texas.

Publicity Committee: Chas. D. Greason, chairman, The Gas Service Co., Kansas City, Mo.; W. C. Grant, Lone Star Gas Co., Dallas, Texas; Douglas Buckler, Southern California Gas Co., Los Angeles, Calif.; Howard Weeks, Consolidated Edison Co., New York City, N. Y.; J. C. Barnes, New Orleans Public Service Co., New Orleans, La.; R. D. Lewis, Laclede Gas Light Co., St. Louis, Mo.; J. F. Curry, Panhandle Eastern Pipeline Co., Kansas City, Mo.; D. C. Schnabel, United Gas Public Service Corp., Houston, Texas; F. D. Bradley, Southern Union Gas Corp., Dallas, Texas; LaGare Davis, Atlanta Gas Light Co., Atlanta, Ga.; Frank R. Jamison, Public Service Co. of Colorado, Denver.

The entertainment committee is headed by Paul C. Ford of the Kansas City Gas Co. Entertainment plans for the convention, which includes a special program for the ladies attending, are going forward.

Gas men who plan to attend the Kansas City meeting are urged to make their hotel reservations as soon as possible. The Hotel Muehlebach, selected as the headquarters hotel, is already booked to capacity. Other principal hotels within a radius of three blocks of the Municipal Auditorium are: the Hotel Phillips, the Hotel President, the Kansas Citian and the Hotel Baltimore. Others include the Hotel Alladin, the Hotel Robert E. Lee and the Hotel Stats.

Ray T. Ratliff, advertising manager of the Kansas City Gas Co., is in charge of hotel arrangements.

■ ■

Gas Hair Dryer Approval Requirements Issued

Approval requirements for gas hair dryers in preparation during the past 18 months have been placed in final form and are now pending approval as American Standard before the American Standards Association. Copies of these standards have been distributed to manufacturers of hair dryers and to all producers of gas control devices and accessories used on such equipment. The new standards became effective January 1, 1937.

The American Gas Association Testing Laboratories are now in position to test gas hair dryer equipment for approval under these new standards.

■ ■

Willett Given 40-Year Award

W. M. Willett, vice-president of Western United Gas & Electric Co., Aurora, Ill., was recently given a service pin in acknowledgment of 40 years of service with the company. Pins were also given to 58 others who had been with the company from 5 to 35 years.

■ ■

Ala. Co. Extends Gas Service

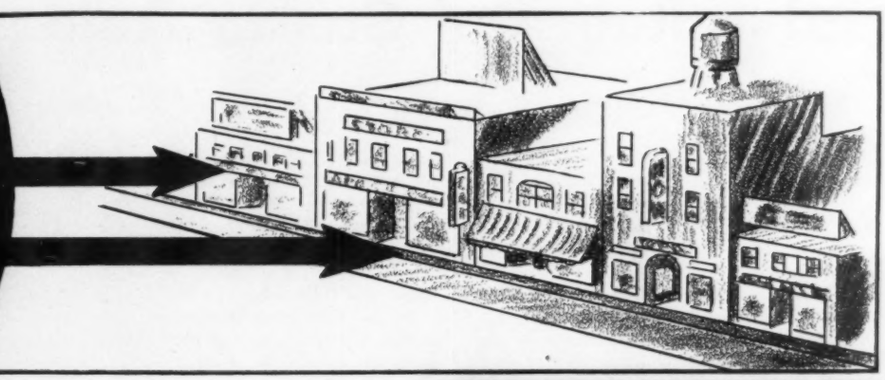
Alabama Power Co. will extend natural gas service to parts of the Girard section of Phenix City, Ala., according to press dispatches. About 70 families will be served from the new line. In Phenix City proper approximately 425 meters are in service.

■ ■

Union Gas Agent Dies

J. Fred Rees, agent at Independence, Kan., of the Union Gas System, Inc., died of a heart attack on December 31. He had been with the Union Gas System and the organizations that preceded it for 25 years. For 18 years he had held managerial posts.

how to increase your load



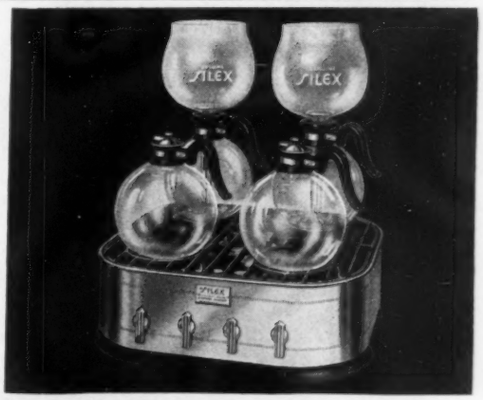
every restaurant and soda fountain is a prospect!

Commercial installations of Silex glass coffee makers step up LOW-USE customers. Your users consume more gas . . . both at the peak and the off-peak hours. Install a Silex glass coffee maker in every restaurant and soda fountain on your lines . . . and watch your annual revenue increase.

There is a Silex glass coffee maker to meet the requirements of every user. Every one of them will help you increase your load. For instance, The Mayfair 4-unit Model pictured has two combination high-low heat burners and two low heat storage burners. The high heat burners consume 6500 BTU's. The low heat maximum is 400 BTU'S.

All Silex glass coffee makers have Pyrex brand glass, guaranteed against heat breakage.

For new load building plans . . . write your name and address in the margin below and mail to The Silex Company, Department G2, Hartford, Connecticut.



Genuine SILEX GLASS COFFEE MAKER

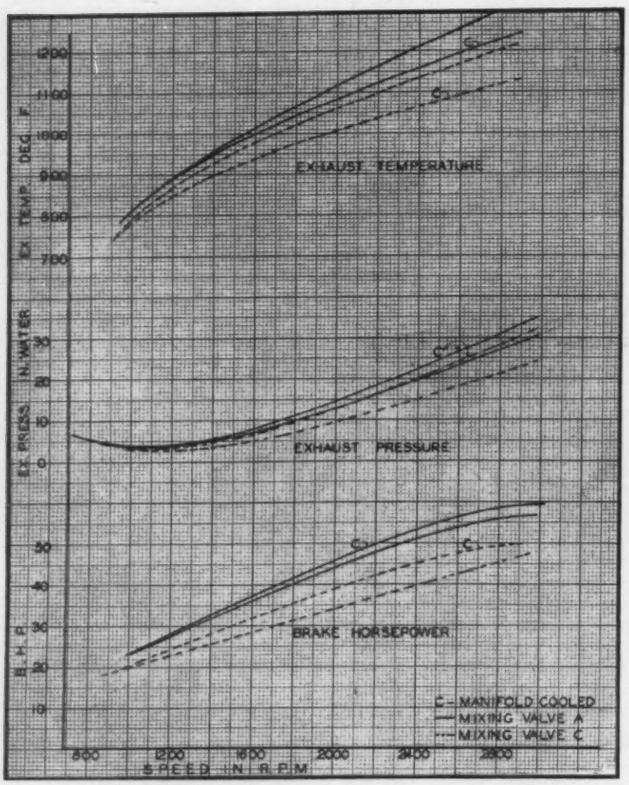


FIG. 6. Effect of varying the intake manifold charge temperature.

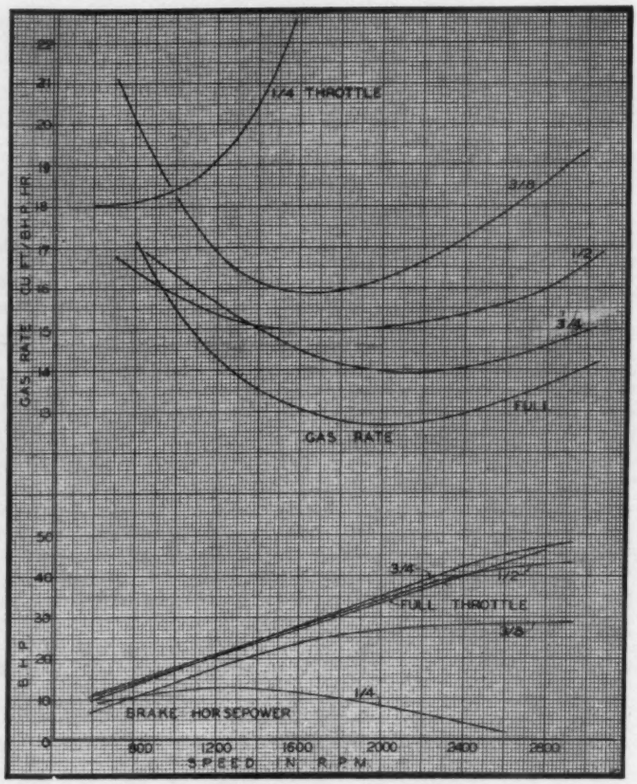


FIG. 7. Characteristic brake horsepower and gas rate curves for Mixing Valve C.

Advantages of Gas in Automotive Engines

(Continued from Page 25)

der walls to the charge by increasing the rates of circulation of the jacket cooling water would have an adverse effect on the heat distribution of the engine.

The theoretical air-gas mixture strength of natural gas was calculated to be 99.1 B.t.u. per cu. ft. compared to 104.3 B.t.u. per cu. ft. for the standard mixture strength of gasoline. Since there is a difference in mixture strength it would be expected that in the actual test the maximum b.hp. developed when using natural gas would be less than the maximum b.hp. developed when using gasoline by a definite amount. However, the curves indicate that this difference is considerably larger. This greater difference is due to incorrect timing of the engine, the undue heating of the intake charge and the incorrect design of the intake and exhaust passages and valves for the burning of gas.

In the Otto cycle maximum work will be obtained from the charge when the maximum pressure occurs at dead center, providing that combustion is instantaneous; but actually since a definite amount of time elapses from the instant of ignition until maximum pressure is reached, it is necesary to ignite the charge before dead center is reached. The group of curves plotted as Fig. 5 indicate the effect on the power developed by an engine operating on natural gas by varying the timing of the ignition. The curves show that the output of the engine is increased by advancing the spark 7½ degrees from the manufacturer's setting, but that a further advance results in a decrease in the power developed although the output is still greater than it was at the original setting. These results are consistent with the fact that the spark advance depends primarily upon the speed of the engine, length of flame travel, and flame velocity. And, since the flame velocity of natural gas is less than that of gasoline, it is reasonable to conclude that the charge should be ignited sooner. These results should suggest that automotive type engines burning natural gas should have their point of ignition increased over the manufacturer's setting for the burning of gasoline.

The engine tested is equipped with an intake manifold heater. This heater is a bypass from the exhaust manifold. The amount of exhaust gas passing through the heater is controlled by a thermostatic valve. This permitted rapid warming up and starting of the engine in cold weather. This heater and the proximity of the exhaust manifold to the intake manifold produces

AIR CONDITIONING
Electrogas
HEATING EQUIPMENT
FURNACES BLOWERS FILTERS WASHERS
Write for attractive Dealer proposition
ELECTROGAS FURNACE & MANUFACTURING CO.
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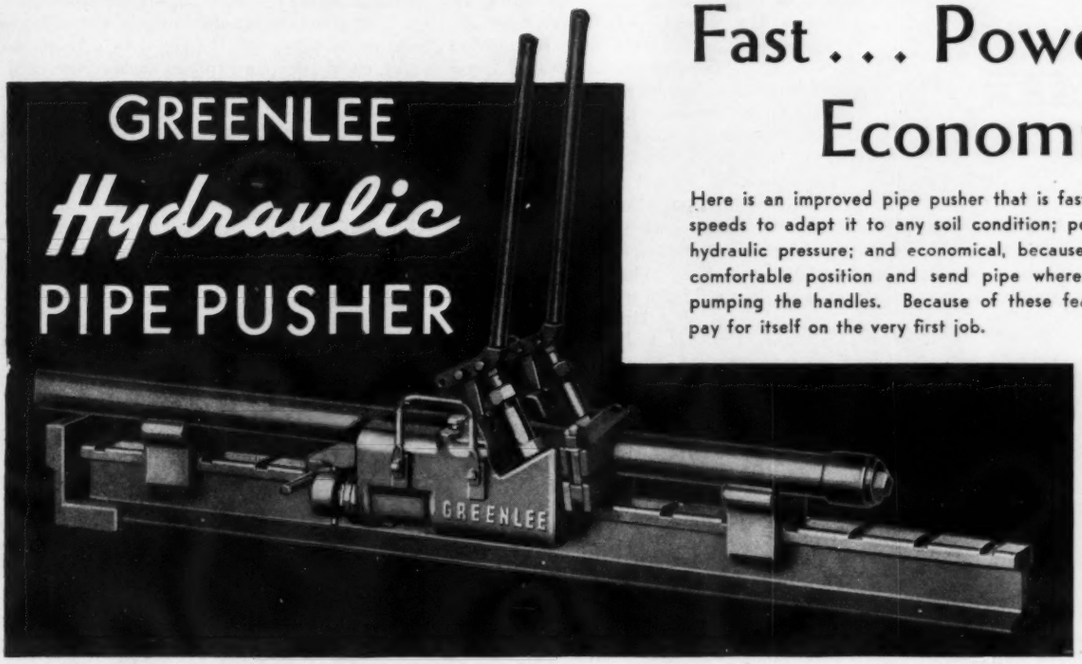

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Here is an improved pipe pusher that is fast, because it has sufficient speeds to adapt it to any soil condition; powerful, because it utilizes hydraulic pressure; and economical, because one man can stand in a comfortable position and send pipe where it is wanted, simply by pumping the handles. Because of these features, it is often able to pay for itself on the very first job.

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The Greenlee Hydraulic Pusher is self-contained. It operates on a notched steel base, which permits making a push of from 4 to 7 feet, depending on the length of base used, without changing the pipe clamp. When it reaches the front end, it is pushed back and the quick-acting clamp is then reset. Pumping the handles sets up a pressure within two oil cylinders to push the pipe. This provides a smooth-acting, powerful mechanism. It will push pipe up to 4-inch and will exert a maximum pressure of 40,000 pounds on the pipe clamp.

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● An investment in Blaw-Knox Gas Cleaners is an investment in freedom from service complaints.

● It insures continuity of service and customer satisfaction, all dividend payers.

BLAW-KNOX COMPANY
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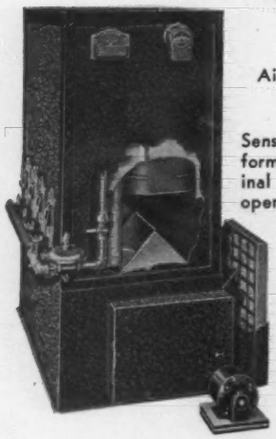

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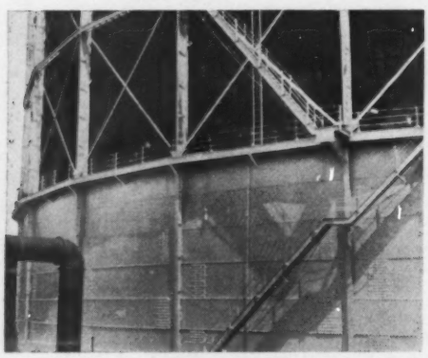

Both Protection and Beauty

NO-OX-ID Aluminum Protective Coating provides chemical and mechanical rust preventive properties for protection of steel surfaces. Its use on gas holders adds the beauty of aluminum. NO-OX-ID prevents loss of metal and eventual replacements. Inquiries invited.

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NO-OX-ID IRON + OX = RUST TRADE MARK

The Original Rust Preventive

undue heating of the charge when natural gas is used as a fuel. The above described design is very undesirable since it increases the volume of the charge that can be introduced into the cylinders of the engine. This results in an increase in fuel consumption and a decrease in the power output of the engine.

Tests with the control valve to the heater in the open and closed positions indicated a decrease in power with the intake manifold heated. The results were similar to those illustrated in Fig. 6. These results were obtained while the intake manifold heater was being cooled by circulating cooling water. The heater was blanked off from the rest of the exhaust gas passage and cooling water circulated through it. At a speed of 1200 r.p.m. the increase in brake horsepower and the decrease in exhaust temperature and pressure is comparatively small, indicating very little advantage. It must be remembered, however, that the intake manifold still received a great deal of heat by radiation from the exhaust manifold and the intake charge were cooled only to be heated up again, but not as high as though no cooling was effected. These tests on cooling the intake charge while of no quantative value, should show quite conclusively that the intake manifold should be kept as cool as possible when burning gaseous fuels. This amounts to stating that the intake and exhaust manifolds should be kept apart and, preferably, on opposite sides of the cylinders.

Interlocked with the effect of inlet gas pressure, time of ignition and inlet charge temperature is the governing of the engine. It is unnecessary to state that the charge shall be correctly proportioned of gas and air, but it is difficult to obtain a mechanical device that will correctly proportion the gas-air quantities at all values of controlling variables. The governing of an engine may be made by varying the quantity of the gas-air mixture, or, by varying the quantity of the fuel alone. A combination of the two methods would complicate the mechanism. The governing device selected is determined, to a certain extent, by the kind of mixing valve selected for the engine.

Regardless of what mixing valve is used, the characteristic results of a particular type of mixing valve would be the same. The results shown in Fig. 7 illustrate the variation of gas consumption and horsepower output at various throttle openings. It will be noted that the values of brake hp. are practically the same for the one-half, three-fourths and full throttle openings although the fuel consumption is much better at full throttle than it is at one-half throttle. This would lead one to believe that the restriction to the flow of air is great enough to produce too rich a mixture with no additional development of power. Governing, under these conditions, is very difficult, if the governing is to be done by variation of the throttle opening. The governor would have to be set to operate over a comparatively small range since the total variation of horsepower output is practically between one-fourth and one-half throttle. Under these conditions, the maximum load would be carried while the engine was set at one-half throttle with a loss due to the higher fuel consumption at one-half throttle over that at full throttle. It is very evident that some other method of governing should be used.

The economy of operating a natural gas engine may depend, therefore, to a large extent upon the governing mechanism used. Referring again to Fig. 3, it will be noted that mixing valve C indicated the poorest results. It is therefore fair enough to use the results illustrated in Fig. 6 to draw a comparison of economy of the engine operating with natural gas, operating with gasoline and with purchased electric power.

Comparative Data

Natural Gas			
Brake hp.	10	15	20
Total Gas—Cu. ft. per hr.	193	264	324
Gas Rate—			
Cu. ft. per b.hp. hr.	19.3	17.6	16.2
Thermal efficiency in per cent	13.2	14.5	15.7
Cost in dollars per hr.			
Gas at 20c per 1000 cu. ft.	.039	.053	.065
Gas at 25c per 1000 cu. ft.	.048	.066	.081
Gas at 30c per 1000 cu. ft.	.058	.079	.097
Gas at 50c per 1000 cu. ft.	.097	.132	.162
Gas at 75c per 1000 cu. ft.	.145	.198	.243
Gasoline			
.1651# at 10c per gal.	.116	.173	.231
.248# at 15c per gal.	.173	.26	.347
.331# at 20c per gal.	.232	.348	.463
Electric Power			
Motor Efficiency—90%			
Power at 1c per kw. hr.	.083	.125	.166
Power at 3c per kw. hr.	.248	.375	.498
Power at 5c per kw. hr.	.415	.625	.830

The above costs do not take into consideration the initial cost or depreciation of the internal combustion engine or electric motor in question, nor do they take into consideration the difference in attendance, repair and maintenance of the equipment. The gasoline engine cost is based on a fuel consumption of 0.7 pounds per brake hp. hour and the electric motor cost is based on 90 per cent motor efficiency assuming no demand change.

■ ■

Texas Carbon Black Plant Now Under Construction

A carbon black plant is now under construction in Moore county, Texas, by the Phillips Petroleum Co. and United Carbon Co., joint owners. The plant's daily gas burning capacity will be 30,000,000 feet. It will use the residue gas from the Phillips and Sunray gasoline plants and a plant to be constructed by Magnolia Petroleum Co.

■ ■

Device Described in G A S Covered by Patents

The anti-orifice device described in the article, "Use of the Anti-Orifice Meter For Field Studies of Gas Flows," which appeared in the December, 1936, issue of *G A S*, is essentially covered by patent, dated April 10, 1934, entitled "Differential Disks." The patent is held by engineers of Public Service Co. of Northern Illinois.

■ ■

Tukey is Omaha Utility Chief

Allen A. Tukey has been elected president of the board of directors of Metropolitan Utilities District, Omaha, Neb. He succeeds F. P. Matthews.

The Heater With The Ultra Modern Touch

A Thing of Beauty---

The engineer's sense of utility and the artist's imagination have been merged. This happy combination has created a new and most beautiful home requisite . . . "The Hotzone Streamline".

The Hotzone Streamline is a beautiful conception of modern design and color, rectangular in form with rounded corners. Panels are in cream ivory . . . Trim is stainless steel. In producing beauty of design there has been no sacrifice of efficiency, simplicity, sturdiness of construction or performance.

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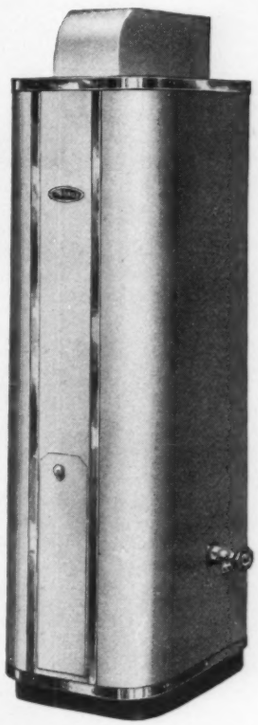

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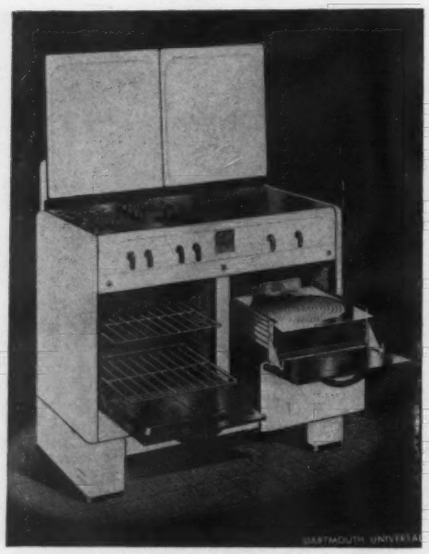


Cribben and Sexton Announce 1937 Range Models

NEW, 1937 models of the Universal gas ranges, manufactured by Cribben and Sexton Co., Chicago, Ill., include several improvements for top-burner and oven cooking, as well as for broiling.

According to announcement of the company, the 1937 Simmer-Save Burner gives 22 per cent greater burner efficiency than the 1936 Simmer-Save Burner.

Greatest improvement over the 1936 Universal models has been made in the oven, the company states. The 1937 oven carries the Universal Equalator Precision Oven Burner, serving both oven and broiling compartments. The new burner gives approximately 30 per cent greater broiling heat distribution than the 1936 burner; permits low-temperature cooking at 250° or lower with uniform, constant oven heat; raises oven temperature to 500° in from 12 to 13 minutes; preserves the uniform heat distribution of the Universal Precision Oven.

The oven door now has a governor which automatically holds the oven door open during broiling operations.

■ ■

So. Counties Gas Co. To Have Two New Branch Offices

SOUTHERN Counties Gas Co., Los Angeles, Calif. plans to open a branch office in Wilmington, Calif. on February 15, according to an announcement from N. R. McKee, vice-president in charge of sales. The office will be under the supervision of O. R. C. Grow, district manager of the company's San Pedro division.

Announced last month was the completion of a new $15,000 branch office in Balboa, Calif. The building, which exemplifies the latest in architectural styles and is of fireproof and earthquake-proof construction, was dedicated on January 24. Fred G. Merker, Orange County district manager, is in charge of the new office.

J. I. Robinson Elevated To Crane Ltd. Vice-presidency

WITH the beginning of the new year, J. I. Robinson assumed the office of vice-president of Crane Limited, Canada. He succeeded J. Austin Murphy, who has retired from active service after 51 years with the company.

J. I. ROBINSON

Mr. Robinson joined Crane Co. in 1907 in the San Francisco branch. In 1919, when the company started its Canadian expansion, he was transferred to Montreal, where he worked his way up to the position of director and general sales manager. From this position he now steps up to the office of vice-president with complete supervision over Crane Limited and its subsidiaries.

■ ■

General Controls Establishes New York Branch Office

A NEW YORK CITY branch of the General Controls Co. was recently established, according to A. W. Ray, general sales manager. This latest addition to the company's servicing-system is under the management of H. G. Wasserlein, engineer-in-charge, and will serve the New York metropolitan area. A complete stock of General temperature, pressure, and flow controls will be carried.

The firm also maintains offices in Cleveland, Kansas City, San Francisco, and Los Angeles. The New York address is 267 Fifth Avenue.

■ ■

Move to Sell Gas Lines In Pennsylvania Territory

Permission to sell their natural gas pipe lines is being sought by the Manufacturers Light & Heat Co. of Pittsburgh and National Transit Co. of Oil City, Pa. Application to sell to the Pennsylvania Gas Transmission Corp. of Pittsburgh is now before the Public Service Commission.

The Pennsylvania Gas Transmission Corp., which has asked the Commission to approve its incorporation, plans to supply gas to five companies serving nine eastern counties. The corporation would bring its gas from western Pennsylvania, West Virginia, and Kentucky.

■ ■

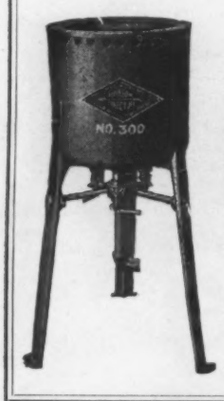
Plan Line to Borger, Texas

A 20-inch gas line will be constructed for Shamrock Oil & Gas Co., Amarillo, Texas, from the company's Dumas plant toward Borger, a distance of 14 miles. This Panhandle line, to be oxy-acetylene welded, will be constructed by Maddux Brothers.

■ ■

Natural Gas for Delhi, Okla.

Delhi Gas Co., Delhi, Okla., is completing a gas distributing system for the community, according to S. O. White, in charge of the project. Gas is to be brought from the Central States plant north of Delhi.



Johnson No. 300
Soft Metal Melting Furnace

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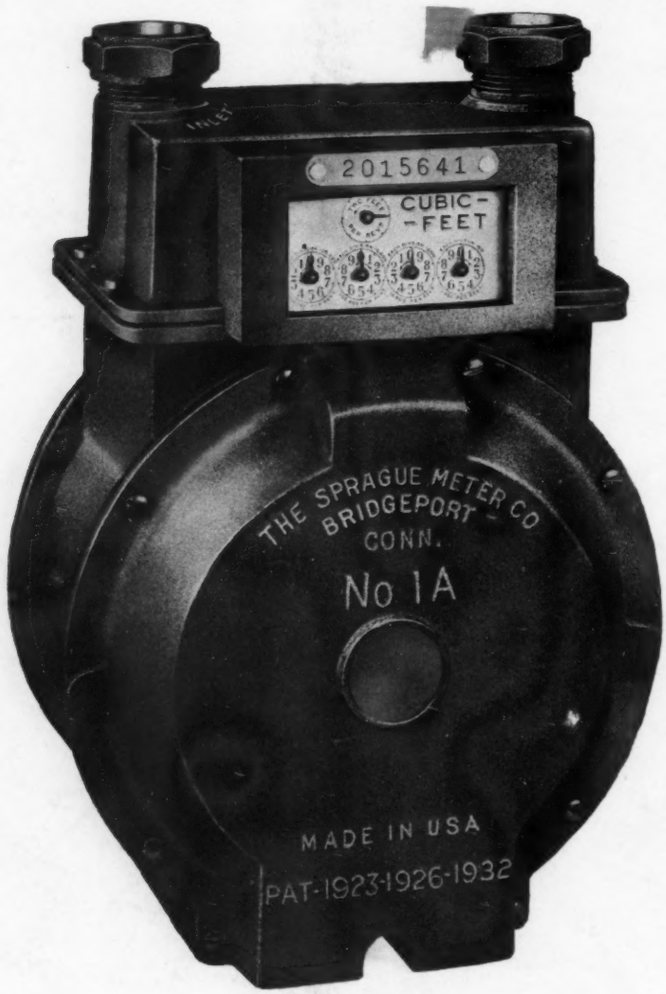
Research Engr., 1013 Peoples Gas Bldg., Chicago



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